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(54) INFORMATION PROCESSING DEVICE AND METHOD THEREFOR

(57)Abstract:

PROBLEM TO BE SOLVED: To realize charging in accordance with the number of printed sheets concerning supplied toner in a cartridge.

SOLUTION: When data 8 on the number of printed sheets are transmitted to a service center 101 from the equipment of a user 102, the service center 101 performs a charging based on a unit cost and the number of printed sheets in accordance with the contents of the contract for every user and informs the user 102 of the amount claimed. When the service center 101 obtains information 1 that the toner amount is small from the equipment of the user 102, it predicts a toner end time and gives information on the replenishment of the cartridge and the recovery of an empty cartridge to the user 102.
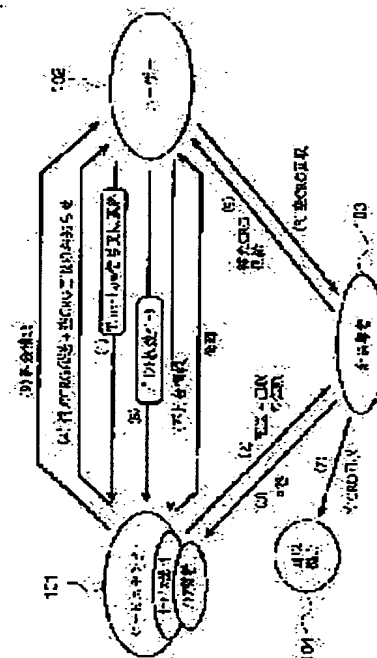
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CLAIMS

[Claim(s)]
[Claim 1] The information processor characterized by to have a storage means is the information
processor which manages the maintenance-contract information according to the identifier
which specifies image-formation equipment, and change the accounting amount of money per
printout of said image-formation equipment, and memorize according to whether the
maintenance information by the serviceman of image-formation equipment is included in said
maintenance-contract information, and a count means calculate the claim amount of money
based on the accounting amount of money memorized by said storage means.
[Claim 2] It is the information processor according to claim 1 with which said storage means has
memorized the 1st accounting amount of money per printout in the case of including the
maintenance maintenance by said serviceman, and the 2nd accounting amount of money when
not including said maintenance maintenance, and said 1st accounting amount of money is
characterized by adding the maintenance tariff as compared with said 2nd accounting amount of
money.
[Claim 3] Said image formation equipment and said information processor are an information
processor given in claim 1 characterized by the ability to communicate bidirectionally through
the 1st network thru/or any 1 term of 2.
[Claim 4] An information processor given in claim 1 characterized by having further the means of
communications which generates the screen information for changing said maintenance-contract
information memorized by said storage means, and transmits thru/or any 1 term of 3.
[Claim 5] Said means of communications is an information processor given in claim 4 term
characterized by receiving the operating condition information on said image formation
equipment, and notifying a user of the contract information according to said received operating
condition information further.
[Claim 6] It is an information processor given in claim 1 which has further a recognition means to
recognize the printing sum total number of sheets within the predetermined period of said image
formation equipment, and is characterized by said count means calculating said claim amount of
money according to the printing sum total number of sheets recognized by said recognition
means, and the maintenance-contract information corresponding to said image formation
equipment thru/or any 1 term of 5.
[Claim 7] The information-processing approach characterized by to have the judgment process
which is the information-processing approach which calculates the toll of the image-formation
equipment by the user, and was memorized by the storage means, and which judges the contents
of the maintenance contract for every image-formation equipment of said, a unit price according
to the contents of said maintenance contract, and the count process which calculate the claim
amount of money based on the accounting amount of money memorized by said storage means.
[Claim 8] It is the information processing approach according to claim 7 that the 1st accounting
amount of money per printout in the case of including the maintenance maintenance by said
serviceman in said storage means and the 2nd accounting amount of money when not including
said maintenance maintenance are memorized, and said 1st accounting amount of money is
characterized by adding the maintenance tariff as compared with said 2nd accounting amount of

"money.

[Claim 9] The information processing approach according to claim 7 or 8 characterized by having further the process which makes a communication link possible bidirectionally through said image formation equipment and 1st network.

[Claim 10] The information processing approach given in claim 7 characterized by having further the communication link process which generates the screen information for changing said maintenance-contract information memorized by said storage means, and is transmitted thru/or any 1 term of 9.

[Claim 11] The information processing approach according to claim 10 characterized by receiving the operating condition information on said image formation equipment, and notifying a user of the contract information according to said received operating condition information further at said communication link process.

[Claim 12] counting which carries out counting of the printing sum total number of sheets within the predetermined period of said image formation equipment — a process — further — having — - said count process — said counting — the information processing approach given in claim 7 characterized by calculating said claim amount of money according to the printing sum total number of sheets in which counting was carried out by the process, and the maintenance-contract information corresponding to said image formation equipment thru/or any 1 term of 11.

[Claim 13] The computer program for realizing the judgment means for judging the contents of the maintenance contract for said every image formation equipment memorized by the storage means by computer, the unit price according to the contents of said maintenance contract, and the count means for calculating the claim amount of money based on the accounting amount of money memorized by said storage means.

[Claim 14] It is the computer program according to claim 13 to which the 1st accounting amount of money per printout in the case of including the maintenance maintenance by said serviceman in said storage means and the 2nd accounting amount of money when not including said maintenance maintenance are memorized, and said 1st accounting amount of money is characterized by adding the maintenance tariff as compared with said 2nd accounting amount of money.

[Claim 15] The computer program according to claim 13 or 14 characterized by having further the means which makes a communication link possible bidirectionally through said image formation equipment and 1st network.

[Claim 16] A computer program given in claim 13 characterized by realizing further the transmitting means for generating the screen information for changing said maintenance-contract information memorized by said storage means, and transmitting thru/or any 1 term of 15.

[Claim 17] Said transmitting means is a computer program according to claim 16 characterized by receiving the operating condition information on said image formation equipment, and notifying a user of the contract information according to said received operating condition information further.

[Claim 18] counting for carrying out counting of the printing sum total number of sheets within the predetermined period of said image formation equipment — a means — further — realizing - - said count means — said counting — a computer program given in claim 13 characterized by calculating said claim amount of money according to the printing sum total number of sheets by which counting was carried out with the means, and the maintenance-contract information corresponding to said image formation equipment thru/or any 1 term of 17.

[Claim 19] The computer-readable storage characterized by storing the computer program of a publication in claim 13 thru/or any 1 term of 18.

[Claim 20] The information processor characterized by to have a screen information generation means to be the information processor which performs processing concerning the article of consumption used for image formation equipment, and to generate the screen information for specifying the stage of recovery of delivery of a new article of consumption, and the residual components of a used article of consumption, and a transmitting means transmit said image formation equipment for the screen information generated by said screen information generation

"means.

[Claim 21] It is the information processor according to claim 20 which has further an amount-used acquisition means to acquire the amount-used information which shows the amount of said article of consumption used emitted from the device which uses an article of consumption, and is characterized by said transmitting means transmitting said screen information based on the amount-used information acquired by said amount-used acquisition means.

[Claim 22] The information-processing approach characterized by to have the screen-information generation process which is the information-processing approach by the information processor which performs processing concerning the article of consumption used for image-formation equipment, and generates the screen information for specifying the stage of recovery of delivery of a new article of consumption, and the residual components of a used article of consumption, and the transmitting process which transmits said image-formation equipment for the screen information generated by said screen-information student process.

[Claim 23] The computer program for realizing a screen information generation means to generate the screen information for specifying the stage of recovery of the delivery of a new article of consumption used with image formation equipment, and the residual components of a used article of consumption by computer, and a transmitting means to transmit said image formation equipment for the screen information generated by said screen information generation means.

[Claim 24] The computer-readable storage characterized by storing a computer program according to claim 23.

[Claim 25] The information processor characterized by having a receiving means to receive the fault information on image formation equipment, and a transmitting means to transmit said received fault information to the computer prepared for the service agency corresponding to the fault of said image formation equipment.

[Claim 26] The information processor according to claim 25 characterized by having further a screen information generation means to generate the screen information for inputting the fault information on said image formation equipment, and transmitting.

[Claim 27] The information processing approach characterized by having the receiving process which receives the fault information on image formation equipment, and the transmitting process which transmits said received fault information to the computer prepared for the service agency corresponding to the fault of said image formation equipment.

[Claim 28] The computer program for realizing a receiving means to receive the fault information on image formation equipment, and a transmitting means to transmit said received fault information to the computer prepared for the service agency corresponding to the fault of said image formation equipment.

[Claim 29] The computer-readable storage characterized by storing a computer program according to claim 28.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the article-of-consumption accounting approach and article-of-consumption accounting systems in a device which use an article of consumption called the cartridge filled up with the toner etc., such as a printer.
[0002]
[Description of the Prior Art] Conventionally, the toner was enclosed with the cartridge, and if the residue of a toner was lost, there was a device of the cartridge type of exchanging the whole cartridge among the devices of the electrophotography method which consumes a toner as record material, such as a printer and facsimile, especially record material. If this method can exchange cartridges easily and other consumables, such as an imprint object, are prepared in the cartridge, it can also exchange that component with exchange of a cartridge and has the advantage that maintenance is very easy. Moreover, the manufacturing cost of the body of a device can be reduced by dividing and giving a part of configuration of a device to a cartridge.
[0003] As for this cartridge (it may be hereafter called CRG for short), used cartridges are also collected being sold to a device user usually through a marketing channel from the manufacturer of the device which uses it by the appliance maker.
[0004] Drawing 31 (A) is drawing showing the selling gestalt of a cartridge. A cartridge is sold out from a dealer in exchange for the price to a user, and is sold with a gestalt, and a user manages the bought cartridge for user itself. It sells out and a gestalt is a gestalt here which has a user buy a cartridge (CRG) completely.
[0005] Drawing 31 (B) is drawing showing how recovery of a used cartridge was performed conventionally. As shown in this drawing, the user's approach of collecting by putting into the box carrying a used cartridge into a dealer **** or for recovery, and sending to a recovery base was common.
[0006] Moreover, the gestalt of a maintenance of the conventional body of a device is shown as drawing 31 (C). Thus, since the body of a device also sold out articles of consumption, such as a cartridge, and was sold with the gestalt, unless the maintenance contract was contracted with the dealer, the user needed to maintain the device for user itself, or needed to request repair (spot repair) if needed.
[0007] On the other hand, there is also such a charging system that sells out and is called click charge apart from a gestalt. This is a method used for the copying machine etc. By this method, periodically, according to a user's request, an engineer goes to a user's site, an engineer reads the value of a counter while maintaining a copying machine, it has a counter for counting the number of sheets copied to the copying machine, and the difference of that value and counter value checked last time is recorded as the number of copies. And a user is asked for the total value of the amount of money according to the number of copies, and the costs of maintenance through mail etc.
[0008]
[Problem(s) to be Solved by the Invention] However, management of the budget which cannot expect like a printer the stage of a cartridge whose toner sells out and is lost by the method

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(toner piece), and is needed for maintenance of a device and the purchase of an article of consumption since the exchange stage is not fixed is difficult. For example, if repair and exchange of a cartridge are carried out, it is necessary to pay costs each time. Moreover, it is difficult to be unable to grasp system operating status of print number of sheets or a printer, but to estimate cost correctly.

[0009] Moreover, in order always to have to make a printer etc. usable into operating time amount, if a toner piece arises, a reserve cartridge must always be secured so that it can exchange immediately. If the storage area for a cartridge is prepared and it always becomes Lycium chinense about an inventory, the costs for it will occur.

[0010] As for the click charge method used with a copying machine etc. on the other hand, the user could know the number of copies, and in order that an engineer might go to a user site periodically [of a certain thing], or in non-commuter's ticket, the trouble that the costs of maintenance cost dearly had the advantage of budget-being easy toize. Moreover, the cartridge sold out the point that the user itself has to supply a toner in order to correspond immediately, when a toner piece etc. arises, and the point that the reserve toner for it always had to be prepared, and they were the same as that of a method.

[0011] Furthermore, in the copying machine, since it was the method which supplies a toner, futility did not appear in a toner but the click charge method has been realized, but if a click charge method is applied to the device of a cartridge-type as it is, the toner discarded by remaining in a cartridge will become useless, and it will become the factor which pushes up the cost price. For this reason, the click charge method was inapplicable even to common devices, such as a printer.

[0012] Moreover, in the copying machine which does not adopt a cartridge type, according to the number of copies, degradation of components advanced, periodical maintenance services, such as a parts replacement accompanying this, were needed, and, so, the click charge method was applied in many cases. . However, in the printer using the process cartridge (only henceforth a "cartridge") which contains a toner, a development counter, etc., since many of components which are easy to produce failure by the article of consumption or degradation are contained in the cartridge, periodical maintenance and check are not usually rarely performed by especially the thing for which repair is requested from a serviceman etc. when the use years of the body of formation equipment seldom pass. And even if there is much print number of sheets, the costs which maintenance takes do not necessarily become large. Therefore, when a maintenance contract is made in the printer of a cartridge-type, a maintenance service tariff is usually fixed irrespective of output number of sheets.

[0013] a cartridge type [in / on the other hand / a printer] — a supplement of an article of consumption and exchange of components — once — and although seen and excelled from the point of that it can do easily, maintenance, and check, a used cartridge poses a problem from the position of an environmental problem. In order for each manufacturer to strive for the used cartridge at recovery, decomposition, and reuse and to solve an environmental problem, improvement in the recovery of a used cartridge is indispensable.

[0014] Moreover, before becoming print impossible, there are also many printers which emit warning of a toner piece, but even if this warning is carried out, the print of dozens of – hundreds of sheets is possible, and there are few users who exchange cartridges immediately after warning. Therefore, when a toner residue decreased, the user had forced the reprint by the blur of a print, or removed the cartridge, and had the problem of forcing it the time and effort of shaking and re-equipping right and left.

[0015] Moreover, although the compound machine with a copy function, a scanner function, and printer ability had spread through coincidence in recent years, what adopts a cartridge type came to be sold also in the device in which does not have distinction of a copying machine, a printer, etc. about such a device, and mainly a copy function is. Although a cartridge type is adopted in the case of such a device, a maintenance maintenance is [stopped / **************] unnecessary like a printer machine which is used by the reasons of the increment in components accompanying multi-functionalization etc. at ordinary homes. Moreover, even if it has adopted the cartridge type, it is necessary to carry out a maintenance

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maintenance, and irrespective of a compound machine, a maintenance maintenance is especially needed in high-speed output image formation equipment, when [a certain amount of] period use continues being carried out with the causes [exhausting / components]. With the maintenance-contract gestalt of the basis former of such a situation, the trouble of it becoming impossible to be unable to respond has occurred. For example, a contract of maintenance service is made by the tariff structure (click charge) according to printing number of sheets, and payment is very complicated and cartridge price is inconvenient also to the serviceman who receives a user and said payment, although the system paid separately is considered.

[0016] This invention was made in view of the above-mentioned conventional example, grasps the consumption of the article of consumption about the whole device which exists in a user site while being able to grasp the costs of an article of consumption more correctly by performing accounting according to the amount of the article of consumption used of a device, and aims at offering the article-of-consumption accounting system and approach of performing accounting according to the consumption.

[0017] Moreover, the further purpose of this invention is offering the accounting system and approach of improving the recovery of a cartridge while improving convenience when a toner residue decreases, maintaining the convenience in the printer by using a cartridge.

[0018] Moreover, the further purpose of this invention is to offer the what structure can provide a user with a high maintenance contract of more flexible **** convenience which responded to the busy condition of the image formation equipment which a user uses, or the model of image formation equipment.

[0019] Moreover, the further purpose of this invention is to offer the structure which can choose a more suitable maintenance contract out of two or more contracts of a user, also when a user changes the contents of a contract.

[0020]
[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention consists of the following means.

[0021] The article-of-consumption accounting equipment by which it is having-count section [which calculates the amount of money which the amount-used information which shows the amount of said article of consumption used which is the device contained in a user system and is emitted from the device which uses an article of consumption acquires, and is charged based on this amount-used information at said article of consumption], and the transmitting section which transmit information which shows the amount of money calculated by said count section to said user system characterized.

[0022] The telecommunication section connects with said device still more preferably.

[0023] Still more preferably, said user system has further the actuation output section connected by said count section and said telecommunication section, and said transmitting section transmits said amount of money to said actuation output section.

[0024] Still more preferably, two or more devices are contained in said user system, and said count section calculates the amount of money charged about said each of two or more devices at said article of consumption, and transmits the sum total to said user system.

[0025] The device prepared in said user system transmits periodically still more preferably the information which shows the amount of said article of consumption used to said count section.

[0026] Said count section transmits warning which predicts the date when the negatively accelerated phosphorescence of said article of consumption is carried out based on residue warning which shows that the residue of said article of consumption emitted from said device reached the specified quantity further, and will stimulate exchange of an article of consumption by the predicted date to said user system still more preferably.

[0027] It has further still more preferably the specification part which specifies the stage of recovery of delivery of an article of consumption newer than said user system, and the residual components of a used article of consumption to warning outputted by said count section.

[0028] Furthermore, preferably, said count section identifies further the article of consumption used for said every device, and calculates the identified amount of money which is charged for every article of consumption.

[0029] Moreover, this invention in other side faces is the article-of-consumption accounting approach by which it is having-count process [which calculates the amount of money which the amount-used information which shows the amount of said article of consumption used emitted from the device which is contained in a user system, and which uses an article of consumption acquires, and is charged based on this amount-used information at said article of consumption], and transmitting process which transmit information which shows the amount of money calculated by said count process to said user system characterized.

[0030] Moreover, this invention in other side faces is the computer program which can execute by the computer, acquires the amount-used information which shows the amount of said article of consumption used emitted from the device which is contained in a user system, and which uses an article of consumption, and is equipped with the program code of the count process which calculates the amount of money charged at said article of consumption, and the program code of the transmitting process which transmits the information which shows the amount of money calculated by said count process to said user system based on this amount-used information.

[0031] Moreover, this invention in other side faces is a computer-readable storage which stores the above-mentioned computer program.

[0032] Moreover, this invention in other side faces is an article-of-consumption accounting system containing a service subsystem and a user subsystem, and is set to a user subsystem. When it is detected that the residue of an article of consumption reached the specified quantity by the detection section which detects that the residue of the article of consumption of a device reached the specified quantity, and said detection section In the output section which outputs residue warning information to a service system with the identifier of said article of consumption, and a service subsystem The residue warning information from said output section is acquired, and it has the count section which calculates the amount of money charged at said article of consumption, and the transmitting section which transmits the information which shows the amount of money calculated by said count section to a user system based on this amount-used information.

[0033]

[Embodiment of the Invention] The description is explained before explaining the detail of the cartridge managerial system which is the gestalt of operation concerning this invention.

[0034] (1) The accounting system (print number-of-sheets accounting system) according to print number of sheets is realized about the cartridge-type printer. Thereby, the following effectiveness is acquired.

- A user can distribute payment of printing costs to selling out and paying price at once with a gestalt.

- Grasp of the use number of sheets in a printer unit and the amount of money which maintenance takes is attained. For this reason, if a printer is packed per its post, grasp of the amount of money which the maintenance in its post unit etc. takes is also easy.

- In addition to a printer, the package management including two or more devices of all built into the cartridge managerial system is attained. It becomes possible for cutting a price to the user who consumes an article of consumption in large quantities by this (volume discount) etc. to give one's service for every user.

- The system is automated using a network. Thereby, it is not necessary to apply a labor cost for management of a system. By the conventional click charge method, in order to require a help, going to check a counter itself caused an increase of cost.

- The condition of a printer can be grasped in a network and a serviceman's count of a user visit can be pressed down to the minimum.

- Since it can charge to it as long as a user uses a printer, stabilization of a profit is attained for a seller. This does the effectiveness of [for a user] improvement in serviceability.

[0035] (2) Delivery and recovery of a cartridge were systematized using the network. Thereby, the following effectiveness is acquired.

- By arranging delivery and recovery on a network, the time and effort about arrangements is reduced and it contributes to the reduction in cost.

- combination with a maintenance — high — it can consider as an added value system.
- Since all managements perform in a service center, a user should just print.
- Recovery of a used cartridge can be ensured.
- Since the condition of a printer is grasped in the service center, an article-of-consumption piece and a repair demand can be answered quickly, and the down time can be decreased.
[0036] (3) A non-volatile storage is given to a cartridge and it enabled it to store the data of arbitration. Thereby, the following effectiveness is acquired.
- Exact data are collectable with every cartridge.
- For this reason, the schedule of delivery and recovery can be created more to accuracy.
- Since a toner piece can be predicted more correctly, as many toners as possible can be used, without generating a toner piece. This contributes to saving of a resource or cost reduction.
[0037] Hereafter, the cartridge managerial system which has the above-mentioned description is explained.
[0038] [The gestalt of the 1st operation]
<System configuration> drawing 2 is drawing showing an example of the system configuration of a cartridge managerial system. This system has an appliance maker's service center and user site which were connected through the telecommunication networks [, such as the telephone line and the Internet,] 205, such as a public line and a dedicated line. Usually, although two or more user sites are connected to one service center and two or more service centers may also exist, here explains only within one service center and one user site. In addition, especially the user site of this operation gestalt is the user who exchanged contracts that service and accounting are carried out with the print number-of-sheets charging system of this system with the appliance maker or the dealer. Moreover, the service center is prepared by the appliance maker and dealer a contract of was made with the user, and performs maintenance, delivery of a cartridge and offer of recovery service, accounting, etc. to a user.
[0039] Gateway 202 is connected with the telecommunication network 205 in the service center 101. Network Server 204 for managing the database server 201 for managing the database mentioned later, a personal computer (PC)203, and LAN is connected to this Gateway 202 by LAN. The router is also contained in Gateway here. The database 1999 mentioned later is built by the database server 201. Moreover, PC203 is used as a window terminal which carries out processing in a service center 101. In PC203 which is a window terminal, in order to perform processing by the side of the service center in drawing 10 thru/or drawing 12 mentioned later, a services module 210 and the analysis system (analysis module) 220 for performing prediction of a toner piece are performed. Moreover, the display of a user interface screen etc. is performed at the window terminal 203. In addition, it is an example, and if the configuration of this service center has the structure which incorporates the data from the telecommunication network 205 to PC203, and the structure which accesses a database 1999 from PC203, it is enough.
[0040] Gateway 207 is connected to the telecommunication network 205 in the user site 102. PC208 and printer 100b are connected to the Gateway 207 by LAN. PC208 has local printer 100a. Printer 100b and PC208 can access the telecommunication network 205 through LAN. Furthermore, in the user site, the facsimile 206 connected to the telecommunication network 205 by circuit with another Gateway 207 has set. PC208 is used as a window terminal which carries out processing in a user site. In PC208 which is a window terminal, the user module 250 for performing processing by the side of the user site in drawing 11 thru/or drawing 12 mentioned later is performed. Moreover, the device module 240 for transmitting data from a device called the toner low signal and print number of sheets in drawing 10 and drawing 12 which are mentioned later to a service site is contained in the device in which direct access is possible on facsimile 206 or the telecommunication network 205 printer 100b. Moreover, the device module 240 has a function equivalent also to the device module 230 mentioned later. In a device like printer 100a connected to the telecommunication network 205 through a host, the device module 230 for transmitting data from a device called the toner low signal and print number of sheets in drawing 10 or drawing 12 to a host is contained. In this case, the transfer module for transmitting the signal received from the device to the service site 100 is contained in a host.
[0041] Thus, it is possible between each device of the user site 102, and a service center 101 to

connect always or if needed and to communicate mutually.

[0042] In addition, when it is only indicated as a user site or a service center below, each window terminal is pointed out. In this example, although a window terminal is the computer connected to LAN of each site, it may form the network which connected each window terminals with the direct telecommunication network 205. Moreover, all of the printer and facsimile of the user site 102 shall be charged with a print number-of-sheets charging system.

[0043] (Computer) The block block diagram of a personal computer is shown in drawing 3 . PC is performing the program written in ROM307 or OS written in RAM302, and an application program by CPU301, and the procedures (for example, a services module, a user module, etc.) mentioned [which mention later and various-kinds-control] later are realized. HD303 and FD/CD (a floppy disk drive or CD drive)308 are file memory media, and store a program file and a data file. Especially FD/CD308 have an exchangeable storage, and can supply data and a program to PC from the medium. A keyboard and a pointing device 309 are input devices for a user to input, and the user interface later mentioned with a display 304 is realized. The LAN interface 306 is an interface circuitry for connecting with LAN. The printer interface 305 is an interface for making local connection of the printer, and only PC208 is using it for PC in the example of drawing 2 . A modem, a router, etc. are the devices for connecting with the telecommunication network 205, and Gateway 202 and Gateway 207 are using the remote interface 310 by drawing 2 . Since a telecommunication network is not restricted to the telephone line, when it is not the telephone line (for example, a cable TV circuit, a radio circuit), the interface adapted to the communication network is used. By such configuration, the computer of a service center and a user site is connected mutually.

[0044] (Facsimile) Drawing 4 is the sectional view showing the configuration of facsimile 206. In drawing 2 , the manuscript feeding device 4101 of the reader section 1 feeds up to platen glass 4102 with one manuscript at a time sequentially from the last page, and discharges the manuscript on platen glass 4102 after reading actuation termination of a manuscript. If a manuscript is conveyed on platen glass 4102, will turn on a lamp 4103, and migration of the scanner unit 4104 will be made to start, and the exposure scan of the manuscript will be carried out. The reflected light from the manuscript at this time is led to CCD series (it is called Following CCD) 4109 with mirrors 4105, 4106, and 4107 and a lens 4108. Thus, the image data outputted from CCD4109 in which the image of the scanned manuscript is read by CCD4109 is transmitted to image I/O control unit 4110, is encoded, and is transmitted to the destination of a telecommunication screen oversize through the circuit which is not illustrated [which was connected to image I/O control unit 4110].

[0045] On the other hand, if a facsimile signal is received from a telecommunication network, it will be decoded and the laser light-emitting part 4201 will be driven by the laser driver 4221 of the printer section 2 according to the decoded image data. Then, the laser beam according to image data is made to emit light to the laser light-emitting part 4201. This laser beam is irradiated by the photoconductor drum 4202, and the latent image according to a laser beam is formed in a photoconductor drum 4202. The part of the latent image of this photoconductor drum 4202 adheres to a developer with the development counter contained in a toner cartridge 4203. And to the timing which synchronized with exposure initiation of a laser beam, paper is fed to the recording paper from either a cassette 4204 and the cassette 4205, it conveys to the imprint section 4206, and the developer to which the photoconductor drum 4202 adhered is imprinted on the recording paper. the recording paper with which the developer rode is conveyed in the fixing section 4207 — having — the heat and pressure of the fixing section 4207 — a developer — the recording paper — a law — it acts as a person. The recording paper which passed the fixing section 4207 is discharged with the discharge roller 4208, and a sorter 4220 contains the discharged recording paper at each pin, and classifies the recording paper. In addition, a sorter 4220 contains the recording paper at the best pin, when classification is not set up. Moreover, when double-sided record is set up, after conveying the recording paper till the place of the discharge roller 208, the hand of cut of the discharge roller 4208 is reversed, and it leads to a re-feeding conveyance way by the flapper 4209. When multiplex record is set up, it leads to a re-feeding conveyance way by the flapper 4209 so that even the discharge roller

4208 may not convey the recording paper. The recording paper led to the re-feeding conveyance way is fed to the imprint section 4206 to the timing mentioned above.

[0046] Thus, facsimile 206 has realized transmission and reception of an image.

[0047] Drawing 7 shows the control configuration of facsimile 206. In drawing 7 , since a printer is driven to ROM706, a control program, font data, etc. are stored, and facsimile reception and printing actuation are realized by performing the program containing a device module by CPU701. The data supplied from the outside are stored in external memory 705. A control unit 707 is the panel which was united with the display, a condition is displayed by this and also a user can perform an actuation input. The remote interface 703 is one of the interfaces for connecting with the telecommunication networks 205, such as a modem.

[0048] The scanner section 704 is the scanner section 1 of drawing 4 , and the printing section 708 is equivalent to the printer section 2 shown in drawing 4 . The printing section 708 is equipped with a cartridge 4203. The cartridge 4203 is equipped with memory 4203a which can write in a non-volatile, with wearing of a cartridge 4203, it connects with the control section of facsimile 206 electrically, and writing and read-out of memory 4203a become possible from CPU701 or CPU which is not illustrated [which the printing section 708 has locally]. The data read from memory 4203a can be sent out to LAN or a host through the LAN interface 704 or the host interface 703. In addition, memory and a control section are calling it only electric connection including these topologies that can send and receive a signal here, although it does not necessarily restrict having connected at the electric contact but may connect also with non-contact gestalten, such as an electric wave and a lightwave signal.

[0049] (Printer) Drawing 5 shows the sectional view of Printers 100a and 100b. In drawing 5 , the form for printing is supplied with the feed roller 803,806 and the conveyance roller 804,807 from the form cassette 802 or either of 805. It is specified at the time of printing from the host computer with which this printer is used for whether it is which **** for sheet paper cassettes. a form should pass the resist roller 808 — the bottom of a toner cartridge 810 — a passage — a photoconductor drum 811 top — forming — having had — a toner — an image — the imprint roller 15 — a form imprints with a charge. The toner image on a photoconductor drum makes a toner adhere to the electrostatic latent image which was emitted from the laser scanner unit 809 and reflected with the reflecting mirror 817 and which was formed of the laser beam modulated by the picture signal, and it is made to develop it.

[0050] The form with which the toner image was imprinted is heated on the fixing drum 812, and the fused toner is established on a form. It is oriented whether the form which passed the fixing roller goes into the double-sided unit 820, or it is discharged by the double-sided deflector 813. When a form is turned upwards and discharged, a discharge trajectory is further switched by face up / face down selector 814. In face down discharge, a form is turned rightward [of drawing], turns down the field printed immediately before on the face down discharge tray 816 with the face down discharge roller 815, and is discharged. When face-up discharge is chosen, from the face-up exhaust port 819, the printed field is turned up and it is discharged on a non-illustrated tray. The location of face up / face down selector is detected by the sensor, and is outputted as a signal.

[0051] On the other hand, when double-sided printing is chosen, the form included in the double-sided unit 820 is conveyed with the conveyance roller 821, and is once laid on the double-sided tray 826. The form with which printing of one side ended is conveyed with the feed roller 822 from a double-sided tray. If the double-sided pass 824 is once sent and the back end of a form reaches the double-sided conveyance roller 823 mostly, the conveyed form will rotate the reversal deflector 825 whose rotational core corresponds with the abbreviation double-sided conveyance roller 823 until a left end reaches a trajectory 828. If a form is turned to hard flow (left-hand side of drawing) and is conveyed in the condition, the left end of a form will be raised by the deflector, will be conveyed with the double-sided pass pickup roller 828 as it is, and will reach the resist roller 808. An image is formed by the back in the same trajectory and procedure as the usual printing.

[0052] The print control is performed by the directions from a host computer at the time of double-sided printing. For example, in order to print efficiently, to both sides, print one sheet of

form, and it does not discharge it at a time, but there is the control approach of supplying a form to the development section and printing it by turns from a medium tray and a double-sided tray. namely, -- as the sequence of printing -- "1st sheet table" -> "2nd sheet table" -> "1st sheet flesh-side" ->"3rd sheet table" -> "the 2nd sheet flesh side" -- like -> "4th sheet table" -> "3rd sheet flesh-side" ->---> "3rds flesh side from last" -> "one-last sheet table" ->"2nd sheet flesh side from last" -> "the last one-sheet flesh side" Except for hidden printing following a table at the beginning and the last, respectively, printing of a table and a flesh side is performed by turns. The form with which the front face was printed is sent into a double-sided unit, and the form with which the rear face was printed is discharged on a paper output tray as it is. That is, the form will be discharged by the paper output tray if an image is formed in the form which the form with which an image is formed in the form supplied from the medium tray was sent to the double-sided tray, and has been sent from the double-sided tray.

[0053] As it said that the control at the time of double-sided printing is not what was restricted to this, printed one both sides at a time, and printed both sides also like the following form, printing is advanced and the thing of it can be carried out. Such control can be switched with the instruction from a host computer.

[0054] moreover, if it becomes, it can obtain, even if only the number of sheets for which two or more sheets of forms can be laid in a double-sided tray and which can be laid in a double-sided tray carries out one side printing and picks out a form from a double-sided tray one by one after it, and can also print to field of one of the two. This can also switch the method of control from a host computer, if a host computer can know the capacity on a double-sided tray.

[0055] Control of the whole printer is performed by the control unit 801 according to the instruction from a host computer. Furthermore, the double-sided unit 810 can be detached and attached, and the information whether it is attached or it is removed is detected by the sensor, and is passed to a host computer.

[0056] Here, the case serves as covering which can be freely opened and closed on a cartridge 810, and closing motion of the covering can be detected by the sensor. Moreover, when the cartridge is equipped with memory, a means to perform read-out and the writing of data is prepared to the memory.

[0057] Moreover, the sensor in which it is shown that the toner residue in a cartridge decreased to the specified quantity is built in the cartridge, and devices, such as a printer or facsimile mentioned later, output a toner low signal in response to the detecting signal from the sensor. That is, a toner low signal is a signal which shows that the toner residue reached the predetermined amount. This toner low signal is generated in response to the detecting signal from a cartridge, when the cartridge is equipped with the residue sensor. However, by updating print number of sheets and the rate of printing by making the time of cartridge exchange into an initial state at every printing, the device which uses a cartridge without a residue sensor can presume a near residue, and can generate a toner low signal.

[0058] Drawing 6 is the control configuration of Printers 100a and 100b. In drawing 6 , since a printer is driven to ROM606, a control program, font data, etc. are stored, and printing actuation is realized by performing the program by CPU601. The data supplied from the outside are stored in external memory 605. A control unit 607 is the panel which was united with the display, a condition is displayed by this and also a user can perform an easy actuation input. The host interface 603 is an interface for connecting a printer as local printers, such as a personal computer, and printer 100a is using this in drawing 2 . The LAN interface 604 is an interface for connecting with LAN, and printer 100b is connected to LAN through this in drawing 2 .

[0059] The printing section 608 is the device itself shown in drawing 5 , and it is equipped with a cartridge 810. The cartridge 810 is equipped with memory 810a which can rewrite a non-volatile. With wearing of a cartridge 810, it connects with the control section of printer 100a or 100b electrically, and writing and read-out of memory 810a become possible from CPU601 or CPU which is not illustrated [which the printing section 608 has locally]. The data read from memory 810a can be sent out to LAN or a host through the LAN interface 604 or the host interface 603.

[0060] (Configuration of a cartridge) A cartridge 810 or the configuration of 4203 (it is only called a cartridge 810 below) is shown in drawing 8 . As shown in drawing, Printers 100a and 100b or

facsimile 206 is equipped with a cartridge 810. Semiconductor memory 810a (about a cartridge 4203, it is 4203a) is attached in the cartridge 810, by wearing of a cartridge, it connects with the body of a printer electrically, and R/W becomes possible. Moreover, although not shown in drawing 8 , the display panel for displaying the data shown in drawing 9 especially cartridge type ID / serial number, the total printing number of sheets, a toner residue, etc. may be prepared. Since it is not determined and changed at the time of manufacture, cartridge type ID / serial number may be stuck as a seal printed to the case of a cartridge, and may be recorded. Since the total printing number of sheets and a toner residue are values which change according to use of a cartridge, a display panel is needed in order to display these values. As a display panel, the small liquid crystal display panel containing the control circuit and backup power supply etc. can be used. Moreover, if the display device which can leave a display condition is used even if it intercepts power sources, such as a ferroelectric liquid crystal, for example, a power source is supplied from the body of a device, and just needs to attach a display panel in a cartridge. In having a display panel, it doubles with the transmit timing of the toner residue mentioned later, or updates a display with the device using a cartridge periodically.

[0061] Thus, an intact cartridge and the cartridge currently used can be distinguished according to the appearance of a cartridge by displaying the information about the condition of a cartridge called identifiers, toner residues, and printing number of sheets, such as its cartridge type ID / serial number, on the cartridge itself. For this reason, in case cartridges are exchanged, for example, an operator (a user or serviceman) incorrect-recognizes a used cartridge to be a new cartridge, and it can prevent equipping with a used cartridge.

[0062] Drawing 9 is drawing showing an example of the data stored in memory 810a. Total count / total jam count, and the printing number of sheets and the jam number of sheets 902,903 for every size which shows all the number of sheets and all the jam number of sheets which were printed using the cartridge are stored in memory 810a. By the device by which it was equipped with this cassette, these counters are added, whenever it performs 1-page printing. Although the value which shows the residue of a toner itself may be stored in the toner residue 904, the output (namely, toner low output) of the sensor which is not illustrated [which detects that toners decreased in number to the specified quantity] may be stored as a flag.

[0063] Furthermore, cartridge ID / serial number 907 for identifying cartridge each are stored in memory 810a. Cartridge ID / serial number 907 is beforehand written in at the time of manufacture or shipment. Furthermore, data called the service center destination used as the destinations, such as a toner piece report, may be stored in memory 810a.

[0064] A beginning-of-using day / end date 905 stores the date by which use was started, respectively, and the date which use ended. for this reason ── being alike ── for example, when it is detected that covering was opened and closed by the closing motion sensor of covering of a cartridge, cartridge ID / serial number in use saved beforehand, and cartridge ID / serial number read from the cartridge are measured, and if inharmonious, a cartridge regards it as what was exchanged and should just write in the date at that time as a beginning-of-using day. Moreover, if the date is surely written in as a use end date every 24 hours, for example, a use end date is recordable. Duration of service 906 should just also write the period from a beginning-of-using day to a use end date in a use end date and coincidence.

[0065] In the system of this operation gestalt, the above data are held to the cartridge. In addition, hereafter, when it is only called printing number of sheets, all the data about printing number of sheets, such as printing number of sheets, the total printing number of sheets, etc. for every size, shall be included.

[0066] <Cartridge management and an accounting procedure>, next the exchange management procedure of the cartridge in said system are explained. In addition, especially a user site points out the user who exchanged contracts that service and accounting are carried out with this cartridge managerial system with the appliance maker or the dealer. Drawing 1 shows the outline of a management procedure.

[0067] In printer 100a in the user site 102, 100b, or facsimile 206, generating of the condition (Toner Low), i.e., a toner low, that toners decrease in number below to the specified quantity detects it by the sensor built in the toner cartridge. This condition is notified to a service center

101 as a toner low signal (1) from the user site 102. In addition, although it is only called the service center, this report is transmitted to PC203 on which a services module specifically functions in a service center 101.

[0068] To the delivery contractor 103, the service center 101 which received this report with PC203 issues delivery of the new toner cartridge to the user site 102, and a request (2) of recovery of a used cartridge, and obtains the reply (3) about the schedule of delivery from the delivery contractor 103.

[0069] A service center 102 transmits delivery of a cartridge, and the notice (4) of recovery to the user site 102 based on the reply obtained from the delivery contractor. However, it is not transmitted simply but this notice includes the sequence of schedule adjustment with a user as mentioned later. Moreover, the notice in this invention points out informational transmitting processing. In addition, when it is said that data are transmitted from a service center 101 to the user site 192, specifically, data are transmitted from PC203 of a service center to PC208 on which a user module functions in a user site.

[0070] On the other hand, the delivery contractor 103 receives the schedule on which it decided by delivery of a cartridge, and the notice (4) of recovery from a service center 101, and carries out delivery (5) of a new cartridge, and recovery (6) of a used cartridge to the user site 102 according to the schedule. The delivery contractor 103 carries the collected cartridge to the recovery base 104 further.

[0071] At the recovery base 104, from the memory of the collected used cartridge, required data are read and the read data are stored in the database which a service center 101 manages.

[0072] With delivery of such cartridges, the print number-of-sheets data (8) based on the printing number-of-sheets count read from memory 820a of a cartridge are transmitted to asynchronous from the user site 102 to a service center 101.

[0073] A service center 101 calculates the tariff according to the received print number-of-sheets data, and transmits billing (9) to the user site 102. A user is paid for a service center by the method of payment which fixed the charged amount of money separately. Moreover, the payee at this time may be a payee separately fixed other than the service center.

[0074] Thus, the service center 101 has realized altogether the notice to collection of required data, delivery of a cartridge and arrangements of recovery and generation of accounting information, and the arranged user site 102 of a schedule or accounting information from the user site taking advantage of the notice (notice of a toner low) of the event from the user site 102 through the telecommunication network 205.

[0075] In addition, although migration of people and an object follows on the relation between the delivery contractor 103 and the user site 102, the relation between the delivery contractor 103 and a service center 102 is only exchange of data. Therefore, when the delivery contractor 103 holds PC connected to networks, such as the telephone line, it is also possible to automate exchange of the information between a service center and a delivery contractor by performing a program with PC.

[0076] In that case, if PC203 receives a toner low signal (1), the program step which realizes the function to transmit a request (2) of recovery of a cartridge to the delivery contractor 103 as an electronic message will be included in the services module. Moreover, when PC203 receives by making a reply (3) into an electronic message from a delivery contractor, the program step which realizes the function to transmit a notice (4) to a user's PC208 is also included in the services module.

[0077] Thus, with constituting, the informational exchange not only including between the user site 102 and service centers 101 but the delivery contractor 103 can be computerized.

[0078] Next, the detail of the procedure of drawing 1 is explained below by drawing 10 .

[0079] <Sequence of notice [of the exchange schedule of a cartridge] and adjustment> drawing 10 and drawing 11 show the procedure for adjusting the schedule for exchange of a cartridge between a service center 101 and the user site 102. The part indicated to be a user site is carried out by the user site 102 of drawing 1 in drawing 10 . Furthermore, the step indicated to be a device in processing of the user site 102 is performed with the device module 230,240 of each device called the printer and copying machine with which it is equipped with a toner

cartridge. A device module is realized as a program module performed by the processor for controlling each device. Moreover, the step indicated to be a host is performed with host computers, such as PC to which the device was connected. Moreover, the part indicated to be a service center is processing carried out by the services module 210 performed with PC203 of a service center 101.

[0080] Drawing 10 shows the procedure to transmission of the notice of a toner low from the user site 102 (1), and its reception by the service center 101. First, a toner low is detected in Printers 100a and 100b or facsimile 206 of the device which a user holds at step 1001, for example, drawing 2 , and the information is outputted as a toner low signal with the device module 230,240. Here, if devices are facsimile 206 and printer 100b, the toner low signal will be transmitted to a service center 101 as a toner low signal (1) of drawing 1 . Cartridge ID / serial number read from the cartridge with the information which shows that it is a toner low are attached to this toner low signal. Furthermore, information, such as a toner residue and printing number of sheets, may be attached to a toner low signal if needed. Such information is acquired from the memory, when a cartridge has the memory 810a and 4203a which memorizes information like drawing 9 , and it is transmitted to a service center through the telecommunication network 205. When it does not have memory, as mentioned above, the residue of the toner which the cartridge was started to use and was presumed with dry accumulation printing number of sheets or the rate of printing is used as information by which notice (1) attachment of a toner low is carried out. This information is memorized by the nonvolatile memory prepared in the body of a device device, and ID/serial number of a body are also memorized by this nonvolatile memory. For example, in step 1001, the residue information on accumulation printing number of sheets or a toner is transmitted to ID / serial number information, and ** of this body.

[0081] In addition, if the device is connected to the direct computer network like printer 100b or facsimile 206, the notice of a toner low (1) will be transmitted to PC203 of a direct service center, as shown as arrow-head 1001a of drawing 10 .

[0082] On the other hand, when it is the printer by which local connection was made at the host like printer 100a in a device, when a service center and a communication link are possible, a toner low signal is published to a host through a host. In this case, a host receives a toner low signal at step 1002. After that, according to the topology to the host's telecommunication network 205 (remote two-way communication means), if the host is accessible on the telecommunication network 205, a toner low signal will be notified to a service center 101 from a host at step 1004.

[0083] If access on the telecommunication network 205 is impossible or access is forbidden, a host will input the data in which a manager is a help, for example, a toner low is shown from the personal computer 208 of drawing 2 , and will make it transmit to a service center 101 as a toner low signal in step 1003.

[0084] A service center 101 receives the toner low signal transmitted by one of approaches at step 1005. It progresses to the step of drawing 11 after that.

[0085] Processing of drawing 11 is performed in the services module 210 and the analysis module 220 on PC203 of a service center 101. When transmitting data to the user site 102 from a service center 101 in drawing 11 , the transmitting destination becomes the window terminal 208 and processing of a display of the user interface screen in there etc. is carried out with the user module 250.

[0086] In drawing 11 , processing separates in step 1101 first by whether the data input method to the analysis system in a service center 101 is automatic, or it is a manual. Step 1101 does not necessarily need to be performed in a service center. This is a false step for expressing the procedure according to the configuration of a service center, and the actual processing in a service center begins from step 1102 or step 1103 according to the configuration.

[0087] In a manual input, a screen display for notifying an actuation person in charge of reception of a toner low signal is performed at step 1102, and the information on the analysis system for managing a delivery schedule is made to input into it by the person in charge.

[0088] The data which were read from the toner low signal and cartridge which were received on

the other hand in the automatic input are inputted into the analysis system 220 as it is (step 1103). Here, when toner residue information and printing number-of-sheets information are attached to the toner low information that it was inputted, such information is also received by PC203 of a service center with cartridge ID / serial number, and it is inputted into the analysis system 220.

[0089] If data are inputted into the analysis system 220, by the analysis system, the date injury prediction of the toner piece will be carried out, and the candidate of a delivery day will be determined based on it (step 1104). About this prediction procedure, it mentions later. Although a next step may be performed by the help, it shall automate altogether here.

[0090] Decision of the candidate of a delivery day notifies the delivery contractor 103 of the day on which it decided from PC203 (step 1105).

[0091] At step 1106 and step 1107, a schedule is adjusted in the delivery contractor 103 and it is transmitted to a service center. That is, schedules, such as an inventory, a candidate of a suitable delivery van or a delivery van, and delivery time amount, are determined by the delivery contractor, and notify a schedule to PC203 of a service center. If the day which cannot be delivered is contained, it will notify also including the day.

[0092] When [this (step 1108)] PC203 of the service center which received the schedule transmits an anticipation exchange stage to the window terminal 208 of a user site, the schedule information on delivery is also included in transmit data.

[0093] To the user site 102 which received this, the user interface (UI) screen of drawing 13 is displayed with the user module 250 of PC208. An input (O.K.) of the purport to which an operator carries out cartridge exchange to this screen displays the screen of drawing 14 based on the delivery day and time amount which are received at step 1108. On this screen, an operator inputs the time for which it wishes out of an anticipation exchange period.

[0094] The inputted appointed day is transmitted to PC203 of a service center 101. In a service center 101, a user (devices, such as PC208 of a user site or a printer) is notified of the time of the scheduled day of the delivery and recovery for which it opted based on this appointed day (step 1109), and a final check is searched for. The screen displayed by the user side at this time is drawing 15 .

[0095] A delivery contractor is also notified of the time decided with the above procedure, and a delivery contractor carries out delivery and recovery of a cartridge in the specified time.

[0096] In drawing 11 , steps 1103, 1104, 1105, 1108, and 1109 are performed with PC103 of a service center, and steps 1106 and 1107 are performed with a delivery contractor's PC etc. That is, in PC203, after step 1105 serves as response waiting from a delivery contractor, and if a response is received, processing will be resumed from step 1108 based on it. Moreover, at step 1108, information, such as the appointed day, is transmitted from a user's PC203 to PC of service.

[0097] <Prediction of toner piece> drawing 19 is a block diagram used as the criteria which decide on the schedule of delivery / recovery day which is performed by the analysis system 220 in step 1104 and in which showing the procedure of expecting the stage of a toner piece. Anticipation of a toner piece stage is performed based on the toner low signal and database 1999 which were received from the device.

[0098] The database 1999 is built by the database server 201. The printing number-of-sheets transition 1915, the rate 1916 of average printing per cartridge, the cartridge delivery day 1917, the toner low signal generation day 1918, the accumulation daus of consumprtion 1906, and the accumulation printing number of sheets 1907 are accumulated in this database 1999 for every /article of consumption the whole /device the whole user. Moreover, the toner piece signal generation day 1908 for every cartridge, the toner low signal generation day 1909 for every cartridge, the duration of service 1910 for every cartridge, the use number of sheets 1911 for every cartridge, and the printing number-of-sheets data 1912 for every cartridge are also stored by transmitting the data recorded on the memory of a cartridge to a service center from PC installed in the recovery base etc.

[0099] The rate 1916 of average printing per cartridge is accumulating the rate 1913 of average printing for every cartridge computed from the use number 1903 of a cartridge, the recovery day

1904, and the printing number-of-sheets data 1905 per cartridge. Moreover, the printing number-of-sheets transition 1915 accumulates the printing number-of-sheets data 1905 on monthly, and is accumulated as monthly transition.

[0100] Furthermore, from the collected cartridge, the average period 1920 to a toner piece is actually searched for from the rate 1919 (this is called for for every class of cartridge) of average printing of a cartridge more exact than the rate 1913 of average printing, and a toner low, and this is also accumulated in a database 1999 from it.

[0101] In prediction, it remains from the rate 1919 of average printing of a cartridge, the number of sheets 1921 which can be printed is predicted first, and the period 1922 from there to a toner piece is predicted. At this time, a forecast can also be amended using data, such as the printing number-of-sheets transition 1915. In quest of the suitable delivery day 1923, an anticipation exchange stage is outputted from the period 1922 to the obtained toner piece, and the generating day 1901 of a toner low signal. To a user site, from the time whose delivery is attained with reference to an inventory, a delivery schedule, etc. to the prediction day of a toner piece is outputted as a candidate of an exchange day.

[0102] Drawing 20 is drawing showing the contents of the amendment processing for expecting a toner piece stage more correctly. For example, suppose that PC203 of a service center received the toner low signal on August 31. Since cartridge ID / serial number is contained, it remains in a toner low signal from the rate of average printing of a cartridge same type, and it turns out that there is 1000 number of sheets which can be printed. If the last printing number of sheets is 1000 per moon, it turns out that the remaining toners go out one month after, and it is necessary to exchange cartridges by then.

[0103] Correction value is referred to here. When it turns out that there is 2000 printing number of sheets around the moon, and the amount of printings is increasing the stage in September to December the twice last year from the monthly printing number-of-sheets transition 1915 by this year, these values also show that printing of 4000 per moon may be performed, if it becomes in September.

[0104] If 1000 sheets which are the number of sheets which can be printed with the remaining toner are converted into a period in this amount of presumed printings, it turns out that a ** toner may be maintained only for the quadrant moon and about one week. Then, as an anticipation exchange stage, September 7 one week after is obtained from August 31. To a user, the period from the day when delivery of a cartridge is attained to September 7 is shown as a candidate of delivery and a recovery day (it transmits).

[0105] Based on the data stored in the database as mentioned above, the anticipation exchange stage was first calculated from the average value, and the called-for anticipation exchange stage is further amended from the periodic inclination that this can also be gained from a database and fluctuation and the latest etc. In this way, the date of a more exact toner piece can be predicted and it can be indicated to a user that the anticipation day is exchangeable in a cartridge by then. In addition, when it is expected that the period which can be printed with a ** toner is very long, in order to let it use a toner as much as possible, you may carry out limiting to the predetermined days containing the day of the toner piece expected in delivery of a cartridge, and the period of a recovery day, for example, one week, etc. If the period which can be printed with the remaining toners in this case is predicted to be January [after], one of the last week of it will be shown to a user as a candidate of delivery and a recovery day.

[0106] Moreover, when PC203 of a service center 101 receives cartridge ID / serial number, and a toner residue with a toner low signal, the day which serves as a toner piece from cartridge ID / serial number, and a toner residue can be predicted more to accuracy. For example, if cartridge ID / serial number is known, the model of device with which the cartridge is used can be limited. Therefore, using cartridge ID / serial number obtained from the cartridge, and the information on a toner residue, it limits to the device which uses the cartridge, and can ask for the average rate of printing, or print number of sheets. Prediction of a much more exact toner piece is attained by amending this for the information of the periodic change and inclination which are managed in the database 1999.

[0107] Furthermore, if the cartridge delivered for every user with PC203 of a service center is

managed, it can distinguish to whether to be the cartridge currently used with which device by what user. In a database 1999, the whole user, if toner consumption, the rate of printing, print number of sheets, etc. are further managed for every model in each user, information, such as a rate of average printing, a periodic change, and the latest inclination, can be accumulated in the device unit installed by the user. A toner piece can be predicted by using like the database which mentioned above every user of this and the information accumulated for every device.

[0108] Thus, since the stage of a toner piece is predicted with high precision and it can decide on delivery and the recovery schedule of a cartridge, the toner of a cartridge can be made to exhaust as much as possible by doubling the exchange stage of a cartridge at the stage which a toner piece produces. This contributes to saving of a resource. Since it has furthermore charged according to print number of sheets with the print number-of-sheets charging system, if the toner discarded while it has been intact can be reduced, the part cost can be lowered and it will contribute to the reduction in a tariff, or increase of a profit margin.

[0109] <Sequence of accounting> drawing 12 is drawing showing the procedure for charging according to the number of sheets printed in the user site. Here, an accounting sequence shall be started considering the print number-of-sheets data periodically sent from a user site as a cause. However, it may be started according to the demand from a service center, and a toner low signal may be started as a cause. Moreover, it may be made to perform accounting business, such as issue of the bill by the service center, to asynchronous with transmission of the print number-of-sheets data to a service center from a user site.

[0110] In drawing 12 , the part which the part indicated to be a user site is carried out in the user site 102, and is indicated to be a service center is processing carried out with PC208 of a service center. Moreover, in processing of the user site 102, the step indicated to be a device is performed by the device by which it is equipped with a toner cartridge, and the step indicated to be a host is performed with host computers, such as PC to which the device was connected through the cable or the network. Moreover, once print number-of-sheets data are transmitted to PC203 of a service center 101, the communication link with a service center and a user site turns into a communication link of each window terminals.

[0111] First, in drawing 12 , from the device with which the contract of the print number-of-sheets charging system contained to the user site 102 is carried out, the print number-of-sheets data generated after the last accounting sequence are read with a device module, and are transmitted to a service center 101 (steps 1201, 1202, and 1202a). Since exchange and accounting of a cartridge are performed to asynchronous, the print number-of-sheets data transmitted are called for in a procedure which is mentioned later.

[0112] In addition, when the device is connected to the telecommunication network 205 via the host, a host computer once receives print number-of-sheets data (step 1203), when it minds a help, it is inputted by the manager, and in an automatic case, the data automatically received to the service center are transmitted (steps 1204 and 1205). In addition, when a device is connected to a host through a cable as a gestalt connected to the telecommunication network 205 via a host in this invention, the case where a device is connected to a host through networks, such as LAN, is assumed. Moreover, the gestalt to which still more nearly another host (host who does not have server ability) was connected is also assumed by the host who a host also has a server-function and has this server ability.

[0113] PC203 of a service center 101 receives print number-of-sheets data (step 1206), and the data is passed to the services module 210 of PC203. And for every user, a services module 210 totals the print number of sheets of each device (step 1207), calculates the claim amount of money based on the value (step 1208), and transmits the amount of money to the user module 250 of PC208 with detail information, such as the number of a contract, and printing number of sheets, (step 1209).

[0114] The screen displayed at this time is a screen of drawing 16 . A detail is displayed on a screen with the claim amount of money. In responding to this claim, when there are push and a doubt about the YES carbon button, a user will push the No carbon button and will perform an inquiry and negotiation separately. Finally, settlement of accounts is performed by the approach defined beforehand (step 1210). If this step 1210 is the settlement of accounts which led the

computer network, it can be performed as a part of a series of processings, but if the approach defined beforehand is transfer to not the electronic settlement-of-accounts approach but a bank account etc., the processing in a services module 210 will be ended, without performing step 1210.

[0115] Drawing 17 (b) is drawing showing an example of the detail of steps 1201 and 1202 of drawing 12 for sending print number of sheets from a user's device carried out with the device module 230,240. Drawing 17 (a) is the storing field of the print number of sheets which a device has in the RAM. As a storing field, the non-charged print number of sheets 1711 showing the print number of sheets by which the tariff is not paid yet about the toner cartridge used by current, the charged print number of sheets 1712 which already finished charging a tariff about the toner cartridge by which current wearing is carried out, and the print number of sheets 1713 read from the used cartridge just before exchange of a cartridge are contained.

[0116] In case print number-of-sheets data are transmitted from a device, the value of print number of sheets to the charged print number of sheets 1712 which read and read print number of sheets from the memory of a cartridge first is subtracted, and the value is stored as non-charged print number of sheets 1711 (step 1701). The non-charged print number of sheets is transmitted to a service center or a host (step 1702). If it is finally able to check that non-charged print number of sheets has been transmitted, 0 will be set to the non-charged print number of sheets 1711, and the print number of sheets read from the cartridge to charged print number of sheets will be set. In addition, the flow chart of drawing 17 is performed for every predetermined periods, such as every month, by the clock function prepared in the device. Moreover, although not shown in drawing 12 , an instruction which transmits the output number-of-sheets information that the device accumulated in PC208 is not charged is transmitted to PC208 from the way of PC203 for every predetermined period, and what acquires accounting information, such as output number of sheets, with PC203 is assumed by this invention. Furthermore, transmitting non-accounting information, such as output number of sheets of the device accumulated in self-equipment for every predetermined period by the clock function prepared in PC208, to P203 is also assumed by this invention.

[0117] On the other hand, when exchanged in a cartridge, a printer 100 and the device of facsimile 206 grade carry out the procedure of drawing 18 . After covering of the cartridge stowage established in the body of a device opened the procedure of drawing 18 , when it is closed again, or when a power source is switched on, a cartridge is carried out as what may have been exchanged. It is detected by the sensor whether covering of a cartridge stowage is open. In the processing sequence after [immediately after covering of a cartridge was able to open] power-source off, a device reads print number-of-sheets data from the memory of the cartridge with which it is then equipped, and saves them as print number of sheets 1713 of a cartridge.

[0118] Then, if covering of a cartridge was closed or a power source is switched on, cartridge ID / serial number is read in the cartridge by which current wearing is carried out, and it compares with cartridge ID / serial number read and saved after cartridge exchange (step 1801). The result is judged at step 1802, and if the same, since cartridges are not exchanged, they will end processing.

[0119] On the other hand, since cartridges are exchanged if not the same, read cartridge ID / serial number are saved as current cartridge ID / serial number (step 1803).

[0120] And the value which subtracted the value of print number of sheets to the charged print number of sheets 1712 which read the saved print number of sheets from the print number of sheets 1713 of a cartridge (step 1804), and was read there is added to non-charged print number of sheets (step 1805).

[0121] And 0 is set to the charged print number of sheets 1712 (step 1806).

[0122] A part for the claim of a tariff to already have finished with doing in this way among the print number of sheets recorded on the cartridge and a part not to be asked yet are distinguishable. For this reason, a user can be asked for the exact tariff based on non-charged print number of sheets in accounting.

[0123] In addition, it is supplied, without collecting a tariff substantially about the new cartridge delivered by the user.

[0124] The print number-of-sheets charging system charged according to print number of sheets is applicable also to devices, such as a printer which supplies a toner by the toner cartridge as mentioned above. By applying a print number-of-sheets charging system, it can pay to asynchronous with the activity of exchange and recovery of a cartridge, and the tariff structure according to the amount of printings can be realized. Thereby, for the service side of a manufacturer or a vender, since a continuous and stable profit is expectable, expansion of service etc. can be aimed at. Moreover, in order to perform data collection for a print number-of-sheets charging system through a network, the part through a help can be reduced and highly precise data can come to hand quickly.

[0125] Moreover, by making it the managerial system which expects the toner piece stage of a cartridge more correctly interlocked with, the jump of the cost price by abandonment of an intact toner can be prevented, and it becomes possible to put the print number-of-sheets charging system about a cartridge on the commercial base.

[0126] If it turns on a user side, since fluctuation of the cost for printing will decrease and a check and guess of a tariff can be simply performed from print number of sheets on the other hand, the check of the payment amount of money and budget-ization of printing cost become easy, and contribute to the productivity drive of these activities.

[0127] In addition, when a device transmits print number of sheets, cartridge ID / serial number may also be transmitted to coincidence. In this case, a service center receives this and stores data in the database of drawing 20 .

[0128] <Maintenance of device> drawing 21 shows a procedure when fault arises to the device which a user holds. With this operation gestalt, since the user site and the service center are connected in the network, a report and repair request of fault generating can also be performed through a network.

[0129] If a user's device detects failure and generates fault information, when the device is connected to the telecommunication network 205 and it connects with the telecommunication network 205 through direct or a host in the service center through it, fault information will be transmitted to a host (step 2101).

[0130] When [when a device does not maintain the sensor of fault] the generated fault is undetectable, or when the device is not connected to the telecommunication network, an operator inputs fault information into the telecommunication network 205 by the manual at the host who connected with the direct or telecommunication network 205 (step 2102).

[0131] When fault information is transmitted to a host, a host receives fault information (step 2103) and fault information is transmitted to a service center automatically (step 2105) through (step 2104) an operator's hand.

[0132] In a service center, if PC203 receives fault information (step 2106), it will be a manual automatically, required information will be notified to an appliance maker's service agency and repair contractor, and a schedule will be adjusted between a service agency or a contractor (step 2107). The adjusted schedule is transmitted to the window terminal 208 of a user site, and if a schedule is adjusted further and it is decided (step 2108), repair will be performed on the schedule on which it decided. For adjustment of a schedule, exchange of data may be performed between user sites in a service agency etc. and step 2108 in step 2107.

[0133] Drawing 22 (A) is a screen displayed when a schedule is notified to a user site from a service center in step 2108. A user chooses a schedule on this screen and returns a service center.

[0134] Drawing 22 (B) is the display situation of the screen information transmitted to a user site from the service center for checking the contents of fault beforehand. A user chooses the contents of failure which correspond out of the displayed candidate, and transmits to a service center. Drawing 22 (B) may be displayed at the time of adjustment of a schedule, and may be displayed before schedule adjustment. If the user is made to notify of the contents of fault before schedule adjustment, extent of failure can also be made to reflect in a schedule.

[0135] Thus, notice of fault and adjustment of a repair schedule can also be performed through a network. In this way, although the serviceman who does check and repair of a printer is dispatched to a user from a service center on the adjusted schedule, in this case, any tariffs

other than the tariff according to the data about print number of sheets are not collected substantially.

[0136] as mentioned above, in the print number-of-sheets accounting system accounting system concerning this operation gestalt over use of a removable printer, the cartridge which contains a toner and a development counter at least The data about the print number of sheets which is outputted from the printer by which it was equipped with the cartridge and which was printed in the printer concerned, and the data about the toner residue in said cartridge While supplying a service center through a telecommunication means, a service center While collecting the tariff according to the data about the print number of sheets supplied through the telecommunication means from the user of a printer The new cartridge with which exchanges for the cartridge in a printer and it should be equipped based on the data about a toner residue is supplied to the user, without collecting a tariff substantially.

[0137] Furthermore, the tariff according to the data about print number of sheets While supplying the data about the failure of the printer concerned which are contained in the maintenance service tariff to said printer, and are further outputted from the printer by which it was equipped with said cartridge to said service center through a telecommunication means The service center has dispatched the serviceman who checks and fixes a printer, without collecting tariffs other than the tariff according to the data about print number of sheets substantially based on the data about the failure of the printer supplied through the telecommunication means.

[0138] Furthermore, the function of a service center is collecting used cartridges including a delivery function called the delivery contractor of a cartridge in the case of new supply of a cartridge.

[0139] According to the cartridge managerial system of this operation gestalt explained beyond <the effectiveness in the gestalt of the 1st operation>, the following effectiveness is acquired.

[0140] (1) When a toner low signal is emitted, in order to predict a toner piece stage and to exchange cartridges at the stage, the toner in a cartridge can be made to exhaust and contribute to saving of a resource or reduction of the cost price.

[0141] (2) Since a cartridge is exchangeable just before the toner piece of a cartridge, the down time of devices, such as a printer by the toner piece, is lost.

[0142] (3) Since a cartridge is delivered by the user just before the toner piece of a cartridge, hoarded goods of the cartridge for exchange, storage, and storage of a used cartridge become unnecessary.

[0143] (4) Since delivery and recovery of a cartridge are combined, a user loses need of carrying a used cartridge into a manufacturer or a dealer, and used cartridges can be certainly collected by moreover exchanging for used it immediately after delivery of a new cartridge.

[0144] (5) It can charge collectively to two or more devices held by the user site. For this reason, accounting and maintenance can be performed by the user unit.

[0145] (6) Since the cartridge itself is equipped with memory and the data of printing records, such as print number of sheets, are recorded there, the data can be put in a database and stored, it is with it, and prediction of an exact toner piece is attained.

[0146] (7) Exchange of a cartridge can be checked by having discernment data called ID and the serial number which show the type of the cartridge for identifying it to a proper in the cartridge itself. Moreover, it can check whether it is the cartridge delivered by the print number-of-sheets accounting formal contract using these discernment data, and the unauthorized use of a cartridge etc. can be prevented. Moreover, the cycle of a reuse and recycling is also manageable.

[0147] (8) Since data are given to the cartridge itself, even if it is in the condition removed from the device, printing number of sheets etc. can be grasped from the data which the cartridge has.

[0148] (9) Since data are concentrated and managed in a service center, a more exact printing ratio and an exchange stage are calculable.

[0149] [the gestalt of the 2nd operation] — the system using the cartridge which does not have memory is explained as 2nd operation gestalt. This system is explained only within difference based on the 1st operation gestalt. Therefore, the overall configuration is as having been shown

in <u>drawing 1</u> and <u>drawing 2</u> , and if it removes that there is no memory in a cartridge, the configuration of a device is the same as that of the 1st operation gestalt.

[0150] <Sequence of accounting> <u>drawing 23</u> is an example of a data area prepared for the memory of the device charged with the print number-of-sheets charging system of this operation gestalt. The data of a proper are excepted by the cartridge although it is the same as that of the data held fundamentally at the memory of a cartridge. Total printing number of sheets / jam number of sheets 2300 show the total which failed in the number of sheets and print which were printed. The printing number of sheets / jam number of sheets 2301 of A3, and the printing number of sheets / jam number of sheets 2302 of A4 show the number of sheets for every size. These values are added every [1], whenever it prints the one-page form of size with which a device corresponds.

[0151] The service center destination 2303 is the destination which transmits print number of sheets and a toner low signal. This field is used when the device is soon connected to the telecommunication network 205. A cartridge type ID is used in order to notify the class of cartridge to a service center from a device. Since it is thought that the contents of these fields 2303 and 2304 are rarely changed, you may record on ROM. Moreover, instead of Cartridge ID (2304), applying ID (it memorizing in body memory) of the body of a device is also considered by this invention.

[0152] <u>Drawing 24</u> is drawing showing the procedure of accounting which changes into <u>drawing 12</u> of the 1st operation gestalt, and is performed with this operation gestalt.

[0153] According to the request from a service site, the print number-of-sheets data 2300-2302 of <u>drawing 23</u> are read, and it transmits to that a device module is periodical or the host by whom the telecommunication network 205 or the device was connected according to a connection place (step 2401). 0 will be set to the read print number-of-sheets data 2300-2302 if transmission is checked.

[0154] Since steps 2403-2410 are the same as step 1203 of <u>drawing 12</u> - step 1210, explanation is omitted.

[0155] Thus, also when a cartridge is not equipped with memory, a service center can be charged according to the print number of sheets for every device. Moreover, also to the device which uses the cartridge equipped with memory, since this sequence is effective, it can be changed into the procedure of <u>drawing 12</u> of the 1st operation gestalt, and can also use the procedure of <u>drawing 24</u> of this operation gestalt. Moreover, since only the processing by the side of a device is different by <u>drawing 12</u> and <u>drawing 24</u> , it can respond also to the user site to which those devices are intermingled by applying the procedure of <u>drawing 12</u> to the device which uses the cartridge which has memory, and applying the procedure of <u>drawing 24</u> to the device which uses the cartridge which does not have memory.

[0156] In a <prediction of toner piece> book operation gestalt, the notice of the exchange schedule of a cartridge started considering toner low signal dispatch of a device as a cause and the sequence of adjustment are the same as that of <u>drawing 10</u> and <u>drawing 11</u> in the 1st operation gestalt almost. However, since it cannot have data for every cartridge, the serial number of a cartridge is not transmitted with a toner low signal. Moreover, the data reflected in a database differ from the 1st operation gestalt, and the methods of prediction also differ.

[0157] <u>Drawing 25</u> is the block diagram used as the criteria which decide on the schedule of the delivery and the recovery day which are performed by the analysis system 210 in step 1104 of <u>drawing 11</u> showing the procedure of expecting the stage of a toner piece.

[0158] The database 2599 is built by the analysis system. The printing number-of-sheets transition 1915, the rate 1916 of average printing per cartridge, the cartridge delivery day 1917, the toner low signal generation day 1918, the accumulation daus of consumprtion 191906, and the accumulation printing number of sheets 1907 are accumulated in this database 2599 for every user.

[0159] The rate of average printing per cartridge is accumulating the rate 1913 of average printing by which 1916 was computed from the use number 1903 of a cartridge, the recovery day 1904, and the printing number-of-sheets data 1905 per cartridge. Moreover, the printing number-of-sheets transition 1915 accumulates the printing number-of-sheets data 1905 on

monthly, and is accumulated as monthly transition.

[0160] In prediction, it remains from the rate 1913 of average printing, the number of sheets 2501 which can be printed is predicted first, and the period 2502 from there to a toner piece is predicted. At this time, a forecast can also be amended using the past rate 1916 of average printing, or data called the printing number-of-sheets transition 1915. In quest of the suitable delivery day 2503, an anticipation exchange stage is outputted from the period 2502 to the obtained toner piece, and the generating day 1901 of a toner low signal. To a user site, from the time whose delivery is attained with reference to an inventory, a delivery schedule, etc. to the prediction day of a toner piece is outputted as a candidate of an exchange day.

[0161] Drawing 26 is drawing showing the contents of the amendment for expecting a toner piece stage more correctly. For example, suppose that the toner low signal was received in the service center on August 31. The number of sheets which is called for from the rate of average printing of the last cartridge and which can be printed shows that the remaining toners go out one month after, and it is necessary to exchange cartridges by then.

[0162] Correction value is referred to here. Supposing, as for the stage in September to November, the rate 1916 of average printing per past cartridge and the monthly printing number-of-sheets transition 1915 show that the rate of printing goes up even to 10%, the rate of average printing will be about 3 times the last rate of average printing from September in November. That is, even a toner piece will be known by that there is nothing only ten days from a toner low signal. Then, let September 10 ten days after be the term of the delivery day of the cartridge for a supplement from August 31 which is a toner low signal generation day. And to a user, the period from the day when delivery of a cartridge is attained to September 10 is shown as a candidate of delivery and a recovery day.

[0163] The date of an exact toner piece can be predicted as mentioned above, and it can be indicated to a user that the anticipation day is exchangeable in a cartridge by then. In addition, when it is expected that the period which can be printed with a ** toner is very long, in order to let it use a toner as much as possible, you may carry out limiting to the predetermined days containing the day of the toner piece expected in delivery of a cartridge, and the period of a recovery day, for example, one week, etc. If there is January of a period which can be printed in this case, one of the last week of it will be shown to a user as a candidate of delivery and a recovery day.

[0164] Thus, since the stage of a toner piece is predicted with high degree of accuracy and it can decide on delivery / recovery schedule of a cartridge, the toner of a cartridge can be made to exhaust as much as possible. Since it has charged according to print number of sheets in the print number-of-sheets charging system, if the toner discarded while it has been intact can be reduced, the part cost can be lowered and it will contribute to the reduction in a tariff, or increase of a profit margin.

[0165] In addition, the analysis system by which the prediction method of drawing 19 and the prediction method of drawing 25 were intermingled can also be built. In that case, about the cartridge which is not equipped with memory, a toner piece is predicted by the approach of drawing 25 and drawing 26 , and a toner piece is predicted by the approach of drawing 19 and drawing 20 about a cartridge equipped with memory.

[0166] According to the cartridge managerial system of this operation gestalt explained beyond <the effectiveness in the gestalt of the 2nd operation>, the following effectiveness is acquired.

[0167] (1) When a toner low signal is emitted, in order to predict a toner piece stage and to exchange cartridges at the stage, the toner in a cartridge can be made to exhaust and contribute to saving of a resource or reduction of the cost price.

[0168] (2) Since a cartridge is exchangeable just before the toner piece of a cartridge, the down time of devices, such as a printer by the toner piece, is lost.

[0169] (3) Since a cartridge is delivered by the user just before the toner piece of a cartridge, hoarded goods of the cartridge for exchange, storage, and storage of a used cartridge become unnecessary.

[0170] (4) Since delivery and recovery of a cartridge are combined, a user loses need of carrying a used cartridge into a manufacturer or a dealer, and used cartridges can be more certainly

collected by moreover exchanging for used it immediately after delivery of a new cartridge.

[0171] (5) It can charge collectively to two or more devices held by the user site. For this reason, accounting and maintenance can be performed by the user unit.

[0172] (6) As compared with the 1st operation gestalt, the device as usual which uses the cartridge which is not equipped with memory is used, and the accounting system of a print number-of-sheets charging system, delivery, and a recovery system can be built.

[0173] (7) Since data are concentrated and managed in a service center, a more exact printing ratio and an exchange stage are calculable.

[0174] As a gestalt of [gestalt of the 3rd operation] the 3rd operation, the system except the delivery contractor who entrusts delivery business on a network from the system of the 1st operation gestalt is explained. This structure of a system and the configuration of each device are the same as that of drawing 2 of the 1st operation gestalt thru/or drawing 9 .

[0175] Drawing 27 shows the outline of the management procedure of the gestalt of the 3rd operation. The same number is given about the same message as drawing 1 .

[0176] In printer 100a in the user site 102, 100b, or facsimile 206, generating of the condition (Toner Low), i.e., a toner low, that toners decrease in number below to the specified quantity detects it by the sensor built in the cartridge. This condition is notified to a service center 101 as a toner low signal (1) from PC208 or the direct device of the user site 102. In addition, although it is only called the service center here, PC203 contained in a service center serves as a report place.

[0177] The service center 101 which received this transmits delivery of a cartridge, and the notice (4) of recovery to the user site 102. However, it is not transmitted simply but this notice includes the sequence of schedule adjustment with a user as mentioned later.

[0178] According to the schedule on which it decided by delivery of a cartridge, and the notice (4) of recovery, a service center 101 delivers a new cartridge to the user site 102 (10), collects used cartridges to coincidence (11), and carries the collected cartridge to it at the recovery base 104.

[0179] At the recovery base 104, from the memory of the collected used cartridge, required data are read and the read data are stored in the database which a service center 101 manages. The read data are transmitted to a service center 101 as cartridge data (12).

[0180] With delivery of these cartridges, the print number-of-sheets data (8) based on the printing number-of-sheets count read from memory 820a of a cartridge are transmitted to asynchronous from the user site 102 to a service center 101.

[0181] A service center 101 calculates the tariff according to the received print number-of-sheets data, and transmits billing (9) to the user site 102. A user is paid for a service center by the method of payment which fixed the charged amount of money separately. Moreover, the payee at this time may be a payee separately fixed other than the service center.

[0182] Thus, the service center 101 has realized altogether the notice to collection of required data, delivery of a cartridge and arrangements of recovery and generation of accounting information, and the arranged user site 102 of a schedule or accounting information from the user site taking advantage of the notice (notice of a toner low) of the event from the user site 102 through the telecommunication network 205.

[0183] In the configuration of <sequence of notice [of the exchange schedule of a cartridge], and adjustment> drawing 27 , the procedure in which a toner low signal is transmitted to a service center 101 from the user site 102, and a service center 101 receives it is as having been shown in drawing 10 of the 1st operation gestalt. However, the processing in the service center which received the toner low signal becomes like drawing 28 .

[0184] In drawing 28 , processing separates in step 1101 first by whether the data input method to the analysis system in a service center 101 is automatic, or it is a manual. Step 1101 does not necessarily need to be performed in a service center. This is a false step for expressing the procedure according to the configuration of a service center, and the actual processing in a service center begins from step 1102 or step 1103 according to the configuration. In addition, with this operation gestalt, an analysis system shall be performing the analysis program of the procedure later mentioned with reference to the database currently built by the database server

201, and shall be realized on PC203.

[0185] In a manual input, a screen display for notifying an actuation person in charge of reception of a toner low signal is performed at step 1102, and the information on the analysis system for managing a delivery schedule is made to input into it by the person in charge.

[0186] The data which were read from the toner low signal and cartridge which were received on the other hand in the automatic input are inputted into an analysis system as it is (step 1103).

[0187] If data are inputted into an analysis system, by the analysis system, the date injury prediction of the toner piece will be carried out, and the candidate of a delivery day will be determined based on it (step 1104). About this anticipation procedure, it mentions later. Although a next step may be performed by the help, it shall automate altogether here.

[0188] Decision of the candidate of a delivery day notifies a user of the day as an anticipation exchange stage (step 1108).

[0189] To the user site 102 which received this, the user interface (UI) screen of drawing 13 is displayed with PC208 which is a window terminal. If the purport to which an operator carries out cartridge exchange to this screen is inputted (O.K.), it will change to the screen of drawing 14 . On this screen, an operator inputs the time for which it wishes out of an anticipation exchange period.

[0190] The inputted appointed day is transmitted to a service center 101. In a service center 101, a user is notified of the time of the scheduled day of the delivery for which it opted based on this appointed day, and recovery, and a final check is searched for (step 1109). The screen displayed by the user side at this time is drawing 15 .

[0191] the serviceman who performs maintenance etc. from a service center 101 according to the time decided with the above procedure, and IT staff — the delivery which only delivers is dispatched to a user site, and a device will be maintained if there are delivery of a cartridge and recovery, and need. The necessary personnel and work content which are dispatched are dependent on the contract made with the dealer and manufacturer who manage a service center, and the user.

[0192] Moreover, since the accounting system by the charging system (print number-of-sheets charging system) depending on print number of sheets is asynchronous, it functions as delivery of a cartridge, and recovery completely like the 1st operation gestalt or the 2nd operation gestalt.

[0193] As mentioned above, with this operation gestalt, the system which does not entrust delivery business on a network can be built. The effectiveness in this case is the same as the effectiveness of the 1st operation gestalt or the 2nd operation gestalt.

[0194] [the gestalt of the 4th operation] — although the configuration with the fundamental system of the 4th operation gestalt is the same as that of the 1st operation gestalt, it is different from the system of the 1st operation gestalt at the point which contains an inventory control system to a user site. As shown in drawing 29 , the inventory control system 260 is realized by performing a program predetermined with PC4 in the user site 102 etc. This inventory control system 260 has also managed the in-house inventory of a toner cartridge, and is interlocked with a cartridge managerial system. Moreover, the computer by which an inventory control system works has the need also with accessible on the telecommunication network 205 it being also direct or indirect.

[0195] Drawing 30 shows the procedure to transmission of the notice of a toner low from the user site 102 in the 4th operation gestalt, and its reception by the service center 101. First, in Printers 100a and 100b or facsimile 206 of the device which a user holds at step 2901, for example, drawing 2 , a toner low is detected and the information is outputted as a toner low signal with a device module. Here, if devices are facsimile 206 and printer 100b, it will be transmitted to PC208 with which an in-house inventory control system works, and the toner low signal will turn into an input signal to an inventory control system 260.

[0196] If it is the printer by which local connection was made at the host like printer 100a in a device, a toner low signal will be published to a host. In this case, a host receives a toner low signal at step 2902. Then, a toner low signal is transmitted to the in-house inventory control system 260 from a host.

[0197] It judges whether when an inventory control system 260 receives a toner low signal, there is the inventory of an inventory control system by distinguishing the type of the cartridge which a device uses from the information on toner low signal dispatch-origin, or body ID / serial number transmitted with a toner low signal, or cartridge type ID / serial number information (step 2903). If there is an inventory, that will be displayed on the display of PC208 etc. and a user's attention will be called (step 2904).

[0198] When judged with there being no inventory, according to the topology of the sending agency device of a toner low signal, and the telecommunication network 205, a toner low signal is transmitted to a service center 101 from an inventory control system 260. When direct access is possible for a device on the telecommunication network 205, a toner low signal is transmitted to a direct service center (step 2907). When connecting through the host computer, a toner low signal is transmitted to a service center 101 from the host (step 2906). When a telecommunication network cannot be accessed on-line, a toner low signal is transmitted to a service center 101 by an operator's manual input (step 2905).

[0199] In this way, the emitted toner low signal is received in a service center 101 (step 2908), and processing is hereafter advanced with a services module 210 and the user module 250 in the same procedure as drawing 11 .

[0200] When the user is performing stock control in addition to effectiveness [in / as mentioned above / the 1st operation gestalt and the 2nd operation gestalt], the cartridge managerial system using a user's inventory can be built.

[0201] [the 5th operation gestalt] ── in explanation of drawing 12 of the 1st operation gestalt In the processing charged according to the output number of sheets printed in the user site, and processing of maintenance of a device in explanation of drawing 21 Explanation about the processing which carries out the dispatch directions of the serviceman who checks and fixes a printer has been given without the tariff according to **** data collecting tariffs other than the tariff according to the data about print number of sheets substantially including the maintenance service tariff to a printer to print number-of-sheets information.

[0202] In the 5th operation gestalt, explanation about the accounting system which can offer the maintenance service which has convenience more for a user further is given.

[0203] Drawing 32 shows the outline of transmission and reception of the data about the contract processing between a user site and a service center. A user site and a service center are equivalent to the user site in drawing 1 , and a service center, respectively. In processing of each step of drawing 32 , processing by the side of a user site shall be performed by PC208, and processing by the side of a service center shall be performed by PC203. Here, the function of PC208 and PC203 is the same as that of what was explained in the 1st - the 4th example, and a block block diagram corresponds to what is shown in drawing 3 . Each processing in PC208 and PC203 is realized when CPU301 controls the processing based on the program code memorized by any of ROM307, RAM302, and HD303 they are. Moreover, PC203 is being interlocked with the database server 201, and is performed by the data control and the data offer (data transmission to a user site) CPU 301 based on the contents of data memorized by this database server 201. Of course, even if PC203 and the database server 201 are physically separate and it is the same, the function of this invention is realizable, and PC203 and a database 201 interlock and just attain the function of this invention.

[0204] Moreover, also making it process by the device device is assumed by this invention by not performing processing by the side of a user site by being limited to PC208, and giving a function (the telecommunication network 205 being minded, for example and it being the function in which the exterior and a bidirectional communication link are possible) equivalent to PC208 to the device device of printer 100a, printer 100b, and facsimile 206 grade. In addition, the block block diagram of each device in that case is the same as that of what was shown in drawing 6 , drawing 7 , etc., and processing based on the program code memorized by the storage section prepared in the device is realized by control of CPUs 601 and 701.

[0205] At step S3201, transmission of ID is performed from a user site. This ID is ID for it being related with user ID or a specific user, excelling, corresponding to Contract ID, and specifying the contract information to a certain user. Below, user ID is explained to the example.

[0206] ID transmitted in S3201 is information inputted into PC208 or each device through the display screen. It is desirable to have PC208, PC203, and the browser ability to which each device can process language, such as HTML and XML, in this invention. The screen for inputting ID is generated and transmitted with PC203, when a user specifies URL and file specific information. And it is displayed on displays, such as PC208 and a device. moreover, ** which demands the input of login information from a user before the screen which inputs ID is displayed ── if it is made to display a screen [like], it can prevent accessing unjustly. In addition, the function of this invention should just support the function in which not only a thing with browser ability but both communication link is possible.

[0207] Here, transmission of ID information from a user site to a service center is performed by the device module 240 for transmitting the data from a device explained previously to a service center, the device module 230, the user module 250 of a host computer, and inventory control system 260 grade.

[0208] At step S3202, a search of the contract information according to ID transmitted from a user site is performed. In step S3203, the information retrieved at step S3202 is transmitted towards a user site from a service center.

[0209] At step S3204, display processing of the information transmitted at step S3203 is performed by the device by the side of a user site. This display processing is displayed on the display prepared in PC208 in a user site, printer 100a, etc. Here, this display is equivalent to the display 304 of drawing 3 , the control unit 607 of drawing 6 , and the control unit 707 grade of drawing 7 .

[0210] Moreover, all (display information) of drawing 33 explained by the after-mentioned and the example of a display shown in 34, 35, 36, 37, 38, 39, 40, and 41 are data managed by the database server 201 by the side of a service center, and the storage section of PC203 grade, they are transmitted to a user site side and it is displayed on the display of printer 100a, printer 100b, facsimile 206, and PC208 grade. Moreover, it considers as structure with the same said of drawing 13 -16, drawing 22 A, and 22B.

[0211] Drawing 33 is an example of a display in step S3204, and shows the contents (3306) of a contract of every device model (3305). Suppose that modification of the contents of a contract for every device is explained in the following explanation. Moreover, the class of device shown in 3305 of drawing 33 is not limited to a printer, and devices, such as facsimile, a copying machine, a compound machine, and a personal computer, are assumed. Moreover, it is not limited to a printer about drawing 34 -41.

[0212] Drawing 34 is also an example of a display in step S3204, and the claim amount of money (3406) based on ID (3402) corresponding to the device device (3401) and this device with which a user owns this display information, a contract situation (3403), the output number of sheets (3404) for every device, the output unit price (3405) per sheet corresponding to a contract situation, and the output unit price per sheet, and the contract term (3407) which corresponds for every device are displayed, respectively. It is also assumed by this application that the output number of sheets (3404) for every device shows a gestalt which corresponds to non-charged number of sheets, in addition the printing number-of-sheets total for every predetermined periods, such as the total printing number of sheets within a contract term, the moon, and a week, is displayed. Furthermore, according to the number of sheets which output number of sheets (3404) counted and counted for every predetermined period in the service center based on the structure of the 1-3rd examples, accounting computation is performed in a service center. Since display information like drawing 34 can peruse to a user site, a user can know clearly to which device renewal of a contract should be performed on the occasion of renewal of a contract. Moreover, since it is the same as that of structure which has been explained with the gestalt of the 1st, 2, and operation of three about acquisition of every [in a service center] device, and the output number of sheets 3404 for every article of consumption, detailed explanation is omitted here.

[0213] The input of the information which specifies the device set as the object of contract processing in step S3205 is performed according to the directions input of the check column 3304 of drawing 33 , and it is ****.

[0214] At step S3206, the information on the device for a contract inputted at step S3205 is transmitted from a user (ID in step S3201) site to a service center with ID.

[0215] In a service center, executive operation of the retrieval of detailed information based on the information and ID which specify the contract device transmitted from a user site in step S3206 is carried out, and a retrieval result is transmitted to a user site (S3207).

[0216] Drawing 35 is an example of a display in the user site of the information transmitted at step S3207. In the example of a display of drawing 35 , the result as which LBP-A2 (semantics of the 2nd set of LBP) was chosen in drawing 33 is shown. What "spot maintenance-contract" is connected for" to "LBP-A2 till December 31, 2001 is shown in 3503. 3505 is the check column for choosing the contents of a contract which a user wants to change, and if an input is made by this check column, a mark with an identifiable user will be added to a screen. Moreover, 3507 is a directions carbon button for displaying the detailed information of each contents of a contract, and if an input is made by this directions carbon button, the detail of each contents of a contract will be displayed on a screen. The directions carbon button for displaying these contents of a detail is displayed also as 3307 of drawing 33 , and a user gets ** which checks the contents of a contract in advance by doing in this way.

[0217] Drawing 36 and 37 show the data by which the storage management is carried out to the database server 201 of a service center, and according to the directions information on the detail carbon buttons 3307 and 3507 of the detail drawing 33 and 35 explained previously, ID, and (S3209), it is transmitted to a user side (S3210), and they are perused. Here, the detail of each contents of a contract shown in drawing 36 (A) and drawing 36 (B) is explained.

[0218] (Spot maintenance contract) As for a spot maintenance contract, only the dues of CRG (cartridge) are contained by the tariff, and travel fee gold, a repair fee, components price, etc. are gestalten paid each time.

[0219] (Basic maintenance contract) About all the costs generated with repair, travel fee gold, a repair fee, components price, etc. cannot be concerned with a number of repairs, but a basic maintenance contract can receive repair for them for free, when it adds to the dues of CRG and a periodical visit maintenance and the repair amount of money within a contract term do not exceed an upper limit. The part beyond an upper limit serves as a cost reimbursement: That to which the storage management of the upper limit amount of money for every model is carried out at drawing 36 (B) is shown, and the storage management is carried out to the database server 201 like drawing 34 .

[0220] (Comprehensive maintenance contract) In addition to the dues of CRG, the periodical visit maintenance during a contract term, travel fee gold, a repair fee, components price, etc. are not concerned with a number of repairs and the amount of money about the costs generated with repair, but a comprehensive maintenance contract serves as onerous altogether except for an exception.

[0221] A user can choose and change these conditions of contract in the period of arbitration. For example, it is possible to purchase a printer, to assume that the 1st year has low failure frequency, to choose a spot maintenance contract, and to choose a comprehensive maintenance contract for a basic maintenance contract the 2nd year in the 3rd and afterwards etc.

[0222] Moreover, the class and the contents of the contract are not limited to these three kinds, can prepare the selection directions carbon button of whether to use the option concerning image formation equipments used by the scanner, reservation printing, etc., such as HD and a sorter, in the display of drawing 33 etc., and can also consider a contract which includes use accounting of this option in the amount of accounting of output number of sheets. In this case, the job accounting table with which data which made the dues of an option correspond to the job accounting table shown in drawing 37 mentioned later at the amount of money per sheet were memorized is assumed.

[0223] Drawing 37 is data in which the accounting amount of money per printout print is shown according to the contents of a contract, and the accounting amount of money per printout of the various maintenance contracts corresponding to LBP-A, and B, C and D is shown. Since the amount of money of this job accounting table may contain a maintenance tariff or may not contain it in the accounting amount of money per sheet as explained previously, the way in case

a maintenance tariff is included serves as a high amount of money. Moreover, if only the job accounting table display information corresponding to the device specified as information which a user peruses is transmitted to a user site from a service center when the information which specifies a device in S3206 has been transmitted to the service center, it will become what has convenience more high for a user.

[0224] Moreover, in this invention, the claim amount of money to a user is calculated in a service center according to the amount of money of the printout number of sheets of image formation equipment, and the printout number of sheets per [which can be found from drawing 34 and a job accounting table like drawing 37] sheet. In addition, about a service center acquiring the printout number-of-sheets information on the image formation equipment of a user site since it is the same as that of what was explained by drawing 12 , drawing 17 (b), drawing 24 , drawing 27 , etc. in the 1-3rd examples, detailed explanation is omitted.

[0225] Moreover, drawing 36 and 37 may be the display gestalten which are changed and displayed also with the gestalt displayed on coincidence. Moreover, although illustration is not carried out, if it is made to carry out a return to the screen which was being perused immediately before by preparing a directions carbon button, such as "returning", it can return to the screen of drawing 33 and 35 grades.

[0226] On the other hand, when the input of a detail carbon button is not performed in step S3208 (No of S3208), or after processing of S3209 and S3210 is performed, transmission of contract update information (it corresponds to the input of 3509 of drawing 35) is performed towards a service center from a user site by S3212 to which the input of the contract information which specifies the maintenance form according to the directions from the user through the screen of drawing 35 is performed in S3211. The information which specifies the maintenance form over a certain device generated through the screen of drawing 35 , and ID are contained in this contract update information at least. The service center which received the information transmitted at step S3212 transmits the information for specifying a contract term to a user site side (illustration is not carried out). The example of a display is drawing 38 .

[0227] At step S3213, if a contract term is inputted through 3804 of drawing 38 and the input of the "O.K. carbon button" of 3806 is made further, transmission of the period assignment information over a new contract will be performed to the information and ** which specify ID, a device, and a maintenance form from a user site to a service center.

[0228] Transmission of the contract check screen information according to S3213 from a service center is transmitted to a user site by S3214. The example of a display in a user site is shown in drawing 39 . this — a user — agreeing (input of the consent carbon button 3905 of drawing 39) — the information which shows consent is transmitted to a service center from a user site.

[0229] From the service center which received the information on consent, information as shown in drawing 40 is transmitted to a user site (not shown to a flow). The directions carbon button information (4005) for performing printing is included in this display information, and if the input of this carbon button is made, the printout corresponding to the this displayed information will be performed. From the printer connected to PC when the device by which this printout shows the information on drawing 40 was a personal computer (PC), when the devices which show drawing 40 are device devices, such as printer equipment, output processing is performed in self-equipment.

[0230] The contract information management within the server after the processing shown in drawing 40 is completed is explained. In the period when a user's contents of a contract were finally changed and which was case [the period] or specified, in a modification schedule, it is changed into contents in which the contents of a contract with a new screen as shown in drawing 34 were incorporated, and the contents of the data corresponding to it are also changed in drawing 40 . A user can also peruse the changed data while they are memorized by the database server 201 by the side of a service center, and the storage section of PC203 grade.

[0231] When drawing 35 was referred to and making a "basic maintenance contract" through drawing 35 , drawing 38 , and the user interface shown in 39 till January 01, 2002 to June 30, 2002 is directed by the user as contract information over LBP-A2 although the "spot maintenance contract" is made till December 31, 2001, the display of drawing 34 is changed like

drawing 41 . Moreover, it is changed into the information the information memorized by the storage section of a database server 201 and PC203 grade is also indicated to be to drawing 41 from the information shown in drawing 34 . If it is recognized in a database server 201 and PC203 that the model was changed into the "basic maintenance contract" from the "spot contract" by LBPA, the storage table of drawing 37 is referred to, and the unit price per sheet will be changed into 13 yen from 10 yen, data as shown in drawing 41 will be generated, and it will be managed. In addition, in drawing 41 , the model (4108) under contract and the model (4109) of contract schedule are displayed to become identifiable, and the data corresponding to this are memorized by the database server 201 and PC203. Moreover, what makes it display identifiable also about the model of contract term piece is assumed with this operation gestalt.
[0232] By carrying out the storage management of drawing 34 which was explained above, and the managed table as shown in drawing 41 with a database server 201 and PC203, from a user site side, operating condition information, such as printing number of sheets transmitted to ID and **, is received, and claim amount-of-money information is transmitted to a user for every predetermined period based on this [corresponding to ID which received / printing number-of-sheets], and the table shown in drawing 34 and drawing 41 . In addition, the example of a display which shows the claim amount-of-money information displayed on the user point corresponds to the example of a display shown in drawing 16 .
[0233] It is the information for specifying the operating condition information over which device as ID transmitted to operating condition information and ** from a user site at this time, user ID, Model ID (equipment item number ID), Contract ID, etc. can be considered, these ID information is memorized by the nonvolatile memory prepared in the cartridge, the nonvolatile memory prepared in image formation equipment, or the storage section of PC208, and it is.
[0234] Moreover, about the structure by which operating condition information, such as every image formation equipment (printer 100a, printer 100b, facsimile 206 grade) and output number of sheets for every article of consumption, is transmitted to a service center from a user site side with ID, it is the same as that of what was explained by drawing 12 of the 1-3rd operation gestalten, drawing 17 (b), drawing 24 , drawing 27 , etc. That is, the gestalt with which operating condition information is transmitted to ID and ** from PC208, and the gestalt with which operating condition information is transmitted to ID and ** from the body of a device device are assumed by this invention. Although it is desirable in S3201 of drawing 32 that it is the same ID as ID (user ID) for specifying a specific user's contract information as for ID transmitted to the operating condition information and ** of this image formation equipment or an article of consumption, even if it is another ID, of course, it is possible to attain the purpose of this invention.
[0235] The further application in the 5th example explained above is explained below.
[0236] (1) Although user ID has been explained to an example as ID which specifies a user's contract information in explanation of drawing 32 of S3201-S3204, this invention is not limited only to user ID and can be adapted for "ID of the body of a device", the "articles of consumption ID", such as a toner cartridge, the "contract ID to which the specific device and the article of consumption were made to correspond", etc. That is, if it is ID which can specify the device used as the contents of a contract, and the candidate for a contract, the purpose of this invention will be attained. for example, the thing it is [a thing] adapted for ID transmitted to a service center from a user site by S3201 of drawing 32 in any, such as the contract ID corresponding to ID of the body of a device, an article of consumption ID, a specific device, and an article of consumption, they are ── each step processing of drawing 32 becomes the gestalt which is performed to a specific device and an article of consumption. This becomes useful when the model for contract modification etc. is extracted beforehand.
[0237] (2) In the example of a display in step 3204, although a gestalt on which the contents of a contract corresponding to the body of a device of image formation equipment are displayed has been explained, displaying the contents of a contract for every (for example, cartridge) article of consumption in relating an article of consumption ID to ID (user ID) transmitted by S3201 is also assumed by this invention. ID for every article of consumption is connected with user ID, and it is managed with the database server 201, and the article of consumption which the user is using

from user ID by CPU301 can be searched, and the contract management for every article of consumption ID is performed here. Here, accounting per print will be performed according to the contents of a contract of a specific article of consumption by combining the structure which acquires operating condition information, such as printout number of sheets for every article of consumption explained in the 1-3rd examples, in a service center. Moreover, when the article of consumption is equipped with a storage means to memorize ID, even if it moves between two or more devices in the range for a contract and an article of consumption is used, the contract of an article of consumption of straddling two or more devices with the device by which an article of consumption is attached since ID of an article of consumption can be recognized, and management of an operating condition become possible by this invention. Thus, with the gestalt which manages ID for every article of consumption, ID in each step of drawing 32 corresponds to an article of consumption ID, and for every device, each display screen will receive, and will not be displayed, but will receive for every article of consumption, and will be performed.

[0238] (3) If suitable maintenance-contract information is generated or retrieved with the database server 201 installed in the service center out of the maintenance contract shown in drawing 36 according to the information which manages information, such as an operating condition of a specific user's image formation equipment etc., a failure situation, and duration of service, and is this managed and it is made to notify to a user site, a user can be easily provided with the maintenance maintenance service according to the situation [exhausting] of image formation equipment. For example, the fault information on the devices (printer etc.) which a user who explained by drawing 21 of the gestalt of the 1st operation owns is accumulated in the database server 201, and a user can be beforehand notified of the suitable contents of a contract according to a model and a failure situation.

[0239] Moreover, it is also possible in the invention in this application to change automatically two or more contracts shown by drawing 35 , such as "a comprehensive maintenance contract", a "basic maintenance contract", and a "spot maintenance contract", as a gestalt of service. For example, it is also possible to offer the suitable maintenance contract for a user automatically by memorizing the suitable contract information made to correspond to the operating condition (the total printout number of sheets, various failure situations) for every device model beforehand to the database server 201, and receiving the fault information on a user's device which was explained to drawing 21 . Furthermore, the contents of a maintenance contract are changed automatically, and when updating the contents of contract information storage of a database server 201 and transmitting and checking the electronic mail which notifies a user of that, after a user checks, it becomes possible to change a maintenance contract automatically.

[0240] According to the cartridge managerial system of this operation gestalt explained beyond <the effectiveness in the gestalt of the 5th operation>, the following effectiveness is acquired.

[0241] (1) Since it was made for a device to include a maintenance maintenance tariff in the accounting amount of money per [which carried out the printout] sheet, also when there is modification of the contents of a maintenance contract from a user, the system which corresponds flexibly can be offered. By preparing a job accounting table as shown in drawing 37 in a service center, it became possible to set up every device device, every article of consumption, and the printout tariff per [which corresponded for every user] sheet, and construction of the system which offers the maintenance contract which suited a user's needs was attained.

[0242] (2) A user can become possible [choosing two or more conditions of contract, such as a spot maintenance contract, a basic maintenance contract, and a comprehensive maintenance contract, as arbitration] according to the maintenance form for which it wishes through user interfaces, such as drawing 33 , 35, and drawing 38 , and a user can choose and change these conditions of contract in the period of arbitration. For example, it is possible to purchase a printer, to assume that the 1st year has low failure frequency, to choose a spot maintenance contract, and to choose a comprehensive maintenance contract for a basic maintenance contract the 2nd year in the 3rd and afterwards etc.

[0243] In addition, even if it applies this invention to the system which consists of two or more devices (for example, a host computer, an interface device, a reader, a printer, etc.), it may be

applied to the equipments (for example, a copying machine, facsimile apparatus, etc.) which consist of one device.

[0244] Moreover, the purpose of this invention realizes the function of the 1st thru/or the 5th operation gestalt mentioned above. The program code of the procedure shown in <u>drawing 10</u> thru/or <u>drawing 12</u> , <u>drawing 17</u> or <u>drawing 18</u> , <u>drawing 21</u> , <u>drawing 24</u> , <u>drawing 28</u> , <u>drawing 30</u> , and <u>drawing 32</u> According to an activation subject, classify for every device module, user module, and services module, and it records on a storage. The storage (or record medium) is supplied to the device and personal computer which are an activation subject, respectively, and it is attained also when they (or CPU and MPU) read and perform the program code stored in the storage.

[0245] In this case, the function of the operation gestalt which the program code itself read from the storage mentioned above will be realized, and the storage which memorized that program code will constitute this invention.

[0246] Moreover, by performing the program code which the computer read, a part or all of processing that the operating system (OS) which the function of the operation gestalt mentioned above is not only realized, but is working on a computer based on directions of the program code is actual is performed, and also when the function of the operation gestalt mentioned above by the processing is realized, it is contained.

[0247] Furthermore, after the program code read from the storage is written in the memory with which the functional expansion unit connected to the functional expansion card inserted in the computer or the computer is equipped, a part or all of processing that CPU with which the functional expansion card and functional expansion unit are equipped is actual performs, and also when the function of the operation gestalt mentioned above by the processing is realized, it is contained based on directions of the program code.

[0248] In addition, this invention does not remain in a toner, for example, can be applied to all articles of consumption, such as a photoconductor drum, a fixing member, and a cleaning member.

[0249]

[Effect of the Invention] According to this invention, the following effectiveness is acquired as explained above.

(1) In order to predict the stage when an article of consumption carries out a negatively accelerated phosphorescence and to exchange articles of consumption at the stage, an article of consumption can be made to exhaust and contribute to saving of a resource or reduction of the cost price.

(2) Even if the user uses two or more devices, it can charge collectively to the article of consumption used with those devices. For this reason, accounting and maintenance can be performed per user.

(3) Since it was made for a device to include a maintenance maintenance tariff in the accounting amount of money per [which carried out the printout] sheet, also when there is modification of the contents of a maintenance contract from a user, the system which corresponds flexibly can be offered. By preparing a job accounting table in a service center, it became possible to set up every device device, every article of consumption, and the printout tariff per [which corresponded for every user] sheet, and construction of the system which offers the maintenance contract which suited a user's needs was attained.

(4) A user can become possible [choosing two or more conditions of contract, such as a spot maintenance contract, a basic maintenance contract, and a comprehensive maintenance contract as arbitration] according to the maintenance form for which it wishes through a user interface, and a user can choose and change these conditions of contract in the period of arbitration.

[Translation done.]

* NOTICES *

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damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is drawing showing the outline of the cartridge managerial system in the gestalt of the 1st operation.
[Drawing 2] It is drawing showing the configuration of the user site in the gestalt of the 1st operation, and a service center.
[Drawing 3] It is the block diagram of a personal computer.
[Drawing 4] It is the sectional view of facsimile.
[Drawing 5] It is the sectional view of a printer.
[Drawing 6] It is the block diagram of a printer.
[Drawing 7] It is the block diagram of facsimile.
[Drawing 8] It is the external view of a toner cartridge equipped with memory.
[Drawing 9] It is drawing showing an example of the data memorized by the memory, with which a cartridge is equipped.
[Drawing 10] It is the system flowchart which shows the procedure of transmission of a toner low signal, and reception in the 1st operation gestalt.
[Drawing 11] It is the flow chart which shows the procedure in the service center which received the toner low signal in the 1st operation gestalt.
[Drawing 12] It is the system flowchart which shows the transmission and processing of accounting information in the 1st operation gestalt.
[Drawing 13] It is drawing showing an example of UI screen to which cartridge exchange is urged.

[Drawing 14] It is drawing showing an example of UI screen for adjusting cartridge exchange time.

[Drawing 15] It is drawing showing an example of UI screen to which delivery of a cartridge and the check of a recovery schedule are urged.
[Drawing 16] It is drawing showing an example of UI screen which notifies the claim amount of money.
[Drawing 17] It is the flow chart which shows the procedure of the print number-of-sheets transmission in a device.
[Drawing 18] It is the flow chart which shows the procedure at the time of the cartridge exchange in a device.
[Drawing 19] It is the block diagram showing the analysis structure of a system which predicts the toner piece of the cartridge in the 1st operation gestalt.
[Drawing 20] It is the block diagram showing the analysis structure of a system which predicts the toner piece of the cartridge in the 1st operation gestalt.
[Drawing 21] It is a system flowchart until it transmits fault information from a user and results in repair.
[Drawing 22] It is drawing showing an example of UI screen for notifying UI screen and the contents of fault for adjusting repair time.
[Drawing 23] In the 2nd operation gestalt, it is drawing showing an example of the data which each device holds.

[Drawing 24] In the 2nd operation gestalt, it is the system flowchart which shows transmission and processing of accounting information.

[Drawing 25] It is the block diagram showing the analysis structure of a system which predicts the toner piece of the cartridge in the 2nd operation gestalt.

[Drawing 26] It is the block diagram showing the analysis structure of a system which predicts the toner piece of the cartridge in the 2nd operation gestalt.

[Drawing 27] It is drawing showing the outline of the cartridge managerial system in the gestalt of the 3rd operation.

[Drawing 28] It is the flow chart which shows the procedure in the service center which received the toner low signal in the 3rd operation gestalt.

[Drawing 29] It is drawing showing the configuration of the user site in the gestalt of the 3rd operation, and a service center.

[Drawing 30] It is the system flowchart which shows the procedure of transmission of a toner low signal, and reception in the 4th operation gestalt.

[Drawing 31] It is drawing for explaining the method of sale of the conventional toner cartridge and recovery, and maintenance.

[Drawing 32] It is the flow chart of an example of the contract processing between the user site in the 5th operation gestalt, and a service center.

[Drawing 33] It is drawing showing an example of UI screen in which the contract situation for every user in the 5th operation gestalt is shown.

[Drawing 34] They are UI screen in which the contract situation for every user in the 5th operation gestalt is shown, or drawing showing an example of the contents of storage of a database server.

[Drawing 35] It is drawing showing an example of UI screen for making a contract change in the 5th operation gestalt, or the contents of storage of a database server.

[Drawing 36] It is drawing showing an example of UI screen for checking the contents of a contract in the 5th operation gestalt.

[Drawing 37] It is drawing showing an example of UI screen for checking the contents of a contract in the 5th operation gestalt.

[Drawing 38] It is drawing showing an example of UI screen for specifying the contract term in the 5th operation gestalt.

[Drawing 39] It is drawing showing an example of UI screen for performing the contract modification check in the 5th operation gestalt.

[Drawing 40] It is drawing showing an example of UI screen for checking contract modification decision in the 5th operation gestalt.

[Drawing 41] They are UI screen in which the contract situation for every user in the 5th operation gestalt is shown, or drawing showing an example of the contents of storage of a database server.

[Translation done.]